

Executive Summary

The City of Carlsbad has developed this Jurisdictional Urban Runoff Management Program (JURMP) to comply with Order No. R9-2007-0001, NPDES Permit No. CAS0108758, Water Discharge Requirements for Discharges of Urban Runoff From Municipal Separate Storm Sewer Systems Draining Watersheds of the County of San Diego, the Incorporated Cities of San Diego and The San Diego Unified Port District (hereinafter referred to as the “Permit”), issued by the California Regional Water Quality Control Board (RWQCB), San Diego Region. The Permit was issued on January 24, 2007 and is valid for five years.

The purpose this JURMP is to implement programs to reduce pollution in urban runoff, including programs to regulate new public and private land development during each of the three major phases of urban development, i.e., the planning, construction, and existing development (or use) phases. Each component of the JURMP closely follows the order of the Permit requirements.

This JURMP will be revised as needed to reflect changes in the City’s urban runoff management programs such as revised or new best management practices or new educational or training programs. The annual updates will also reflect changes in the City’s commercial, industrial, and municipal databases, including revisions to facility/activity prioritizations that will be refined as additional monitoring and inspection data becomes available.

The City will submit a JURMP Annual Report, which will contain a comprehensive description of all activities conducted by the City to meet Permit requirements applicable to each component of the JURMP. The JURMP Annual Report will include a summary of all illicit discharge complaints and resolutions, and summaries of inspections, enforcement actions, and educational programs. A description of the mechanisms implemented to achieve public participation, budget information, identification of water quality improvements or degradation, and identification of management measures ineffective in reducing pollutants, will also be discussed. The JURMP Annual Report will assess the effectiveness of each component’s program in reducing pollutants in urban runoff. The annual assessments will be used to implement revisions, where appropriate, to the City’s JURMP.

1.0 INTRODUCTION

1.1 Background

The San Diego Regional Water Quality Control Board issued the Municipal Storm Water Permit Order No. R9-2007-0001, NPDES No. CAS018758 on January 24, 2007 to control waste discharges in urban runoff from the Municipal Separate Storm Sewer System (MS4) draining the watersheds of the County of San Diego, the Incorporated cities of San Diego County and the San Diego Unified Port District.

The Order describes all requirements, including the content of the Jurisdictional Urban Runoff Management Plan (JURMP) to be prepared and submitted to the San Diego Regional Water Quality Control Board by each and all of the Copermitttees.

1.2 Purpose and Objectives

The City of Carlsbad has prepared this Jurisdictional Urban Runoff Management Plan as described in the Municipal Storm Water Permit NPDES Order No. R9-2007-0001, (Permit) issued by the San Diego Regional Water Quality Control Board on January 24, 2007.

1.3 Overview of City of Carlsbad

The City of Carlsbad is a unique coastal community located 35 miles north of the City of San Diego surrounded by mountains, lagoons and the Pacific Ocean. Although the "village" dates back more than 100 years, the City was incorporated July 16, 1952. At that time, Carlsbad had a population of approximately 7,000 people and covered 7.5 square miles. Since its incorporation, the City has grown substantially in population and size through annexations. The City encompasses approximately 42 square miles of land area. There will be no foreseeable growth in the land size of Carlsbad because all County islands have been annexed. At buildout, sometime beyond the year 2010, there will be at most 54,599 residential units in Carlsbad, housing approximately 135,000 residents. The dwelling unit cap was ratified by the voters of Carlsbad in the November 1986 election and can only be increased by a majority vote of the people.

The City of Carlsbad is a General Law city. This means the City follows the general laws of the State of California rather than having a specific charter of its own. It is a municipal corporation following the Council-Manager form of government.

The City Council is the community's legislative body. The Council enacts laws known as ordinances; sets policies known as resolutions; and, adopts an annual budget. The Mayor and four City Council members are elected city-wide by registered voters in the City of Carlsbad. These officials typically serve four-year terms. Also elected for four-year terms are the City Clerk and the City Treasurer.

The Council hires the City Manager and the City Attorney who serve at the pleasure of the City Council. The City Manager serves as the City's Chief Administrative Officer and sees to it the Council's programs are implemented.

1.4 Watershed

The physical geography and topography of the City of Carlsbad is very diverse with steep hills and coastal areas. As a result, there are a wide range of drainage conditions. The four major waterways and their tributary canyons have carved valleys floored with alluvial material. Thus far, construction in the flood plains has not occurred to the extent that it is a cause for concern. All drainage basins with the exception of Encinas Canyon (Canyon de las Encinas) terminate in lagoons.

The City of Carlsbad is divided into four distinct sub-watersheds within the limits of its jurisdiction of 42 square miles. Listed below are those basins, starting from the north:

- Buena Vista Creek and Lagoon
- Agua Hedionda Creek and Lagoon
- Canyon de las Encinas Creek
- San Marcos Creek and Batiquitos Lagoon
- Escondido Creek

The City of Carlsbad and its five sub-watersheds is located in a bigger watershed called The Carlsbad Hydrological Unit. Carlsbad Hydrological Unit covers 210 square miles that includes these additional watersheds:

- Loma Alta Creek
- Cottonwood Creek
- Escondido Creek and San Elijo Lagoon

The Municipal Copermittees that are located in the Carlsbad Hydrological Unit include:

- The City of Carlsbad
- The City of Encinitas
- The City of Escondido
- The City of Oceanside
- The City of San Marcos
- The City of Solana Beach
- The City of Vista, and
- The County of San Diego

1.5 Receiving Waters

Receiving waters in the Carlsbad Hydrologic Unit travel through several jurisdictions in the watershed. The receiving waters within the City of Carlsbad limits include:

- Buena Vista Creek and Lagoon
- Agua Hedionda Creek and Lagoon
- Canyon de las Encinas Creek
- San Marcos Creek and Batiquitos Lagoon, and
- The Pacific Ocean

1.6 Environmentally Sensitive Areas

Using the definitions from section F.1.b.(2)(a)vii of the Permit, it was determined that City of Carlsbad contains the following environmentally sensitive areas (ESAs):

- Buena Vista Lagoon (RARE Beneficial Use, 303(d) impaired)
- Buena Vista Creek (RARE Beneficial Use)
- Agua Hedionda Lagoon (RARE Beneficial Use, 303(d) impaired)
- Agua Hedionda Creek (303(d) impaired)
- Multiple Habitat Conservation Program Biological Core and Linkage Areas
- Sensitive Vegetation Buffers as determined by the City of Carlsbad

1.7 JURMP Implementation Strategy

The City of Carlsbad will initiate implementation of the JURMP on March 24, 2008 and will use a continuous improvement and refinement strategy to identify changes to this JURMP through the life of the Permit.

The improvements are expected to contribute to a “living” document that changes with the advances in technology (i.e. BMPs, analytical testing, etc.) and the environmental conditions in the Watershed.

Through the mechanism of annual reporting, the major changes in the 2008 Carlsbad JURMP are expected to be identified and submitted to the regulatory agencies in subsequent years.

The City of Carlsbad formed several teams composed of city staff from various departments to develop and implement this JURMP. With assistance from contractors and consultants, this JURMP has been developed to address the requirements of Order R9-2007-0001.

The City of Carlsbad is implementing this JURMP citywide with guidance and leadership from the Storm Water Protection Program located in the Public Works Department.

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2.0 ADMINISTRATIVE AND LEGAL PROCEDURES

2.1 Department Roles

The following is a table identifying the departments and staff that conduct urban runoff management activities and their roles under the City’s JURMP. For broader descriptions of the departments and their overall roles in the City operations, please see the City’s website at www.carlsbadca.gov.

Table 2-1 Department Roles

Department	Roles
City Manager’s Office	Overall oversight for JURMP implementation;
City Attorney	Certification of adequate legal authority; Enforcement assistance when necessary.
City Clerk	Maintains records of programs and implementation; provides public records request support when applicable
Public Works Director	Designee for JURMP oversight with authority to certify related documents.
Community Development – Planning Division and Public Works - Development Services	General Plan update; Environmental Review process update and implementation; review of projects for compliance with all City development codes; conditions of approval for project permitting process; provide data and information for annual reports; provide education to development community
Public Works – Engineering (Land Development) Division	Modifications to development requirements; ensure that new development and significant redevelopment requirements (e.g., SUSMP) are included in all development projects; maintain inventory of permits; assist in development of and implementation of Hydromodification Management Plan; provide data and information for annual reports; provide education to development community
Public Works – Engineering (Capital Projects) Division	Ensure that capital improvement projects meet the new development or significant redevelopment requirements; ensure that the capital improvement projects construction activities have adequate BMPs required for implementation by the City’s contractor; provide data and information for annual reports
Public Works – Construction Management and Inspections	Maintain construction site inventory; Conduct inspections and regulate construction sites regarding erosion, sediment control and other site management activities; including post-construction BMPs; Contribute to education and outreach for construction audience; Conduct post-construction BMP construction verification; Maintain the treatment control BMP inventory and oversee maintenance tracking activities; Special event inspections; Provide data and information for annual reporting

Department	Roles
Community Development – Building Division and Code Enforcement	Plan review, permit issuance, building inspection and code enforcement for building permit projects; provide data and information for annual reports; provide education to development community, Provide enforcement support for construction activities.
Public Works – Storm Water Protection Program	Manage Coastal Monitoring Program, Dry Weather Monitoring Program, and participate in the Regional Monitoring Program; Oversight of illicit discharge detection and elimination program, including investigation and enforcement; Maintain municipal inventory and manage municipal high priority facilities program; Assist with training of municipal employees; Conduct inspections and enforcement of industrial and commercial facilities; Hotline and complaint response, enforcement and follow-up; Education of residential sector, industrial and commercial facilities; personnel; Provide educational materials and outreach for various target audiences; Provide education for residents, general public, and school children; Serve as liaison to City Departments regarding implementation of the Order and JURMP; Coordinate annual report preparation; Lead agency for Carlsbad WURMP Workgroup; Serve as lead for TMDL related activities.
Public Works – Parks	Application of pesticides; herbicides and fertilizers; maintenance of parks and park facilities; maintenance at Municipal high priority facilities; BMPs; provide data and information for annual reports
Public Works – General Services and Maintenance & Operations	Provides general, routine maintenance, and BMP maintenance at City-owned buildings; Administers street sweeping program and trash pickup contract; maintenance of City streets and roads; Operate and maintain the City’s storm water system and structural controls; Conduct preventative maintenance; provide data and information for annual reports
Fire Department	Implementation of BMPs at Fire Stations and during non-emergency fire-fighting activities; Provide training to staff; Provide data and information for annual reporting
Community Development - GIS	GIS development and implementation; database management
Finance Department	Maintains City business license database.
Public Works – Environmental Programs	Household Hazardous Waste Management Program; provide data and information for annual reports.

The organizational chart, Figure 2-1, below shows these departments in relation to the City management.

CITY OF CARLSBAD ORGANIZATION CHART

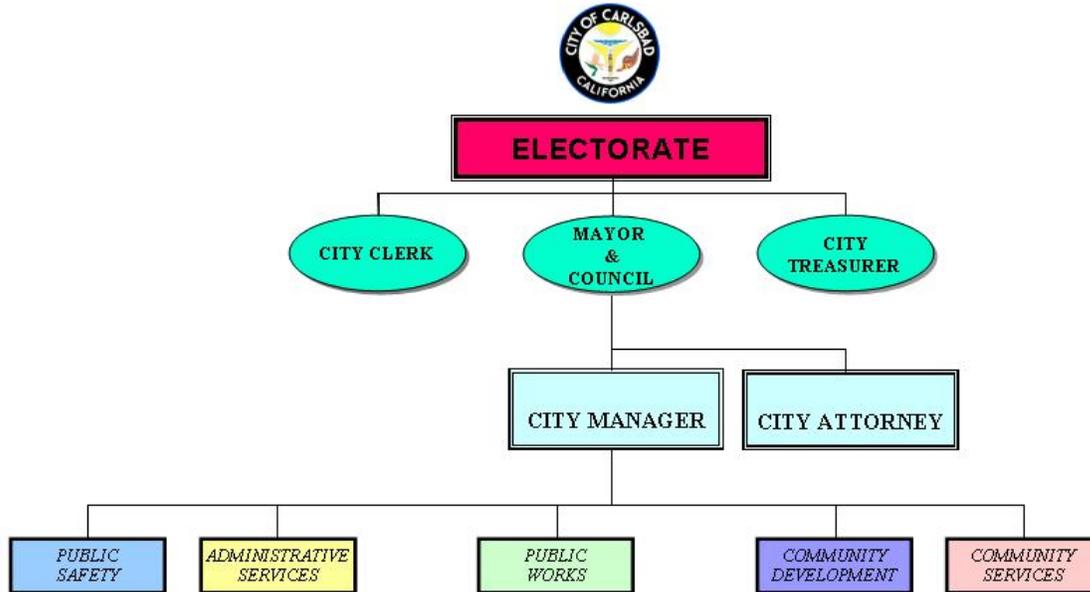


Figure 2-1 City of Carlsbad Organizational Chart

2.2 Legal Authority

The City has established and maintains its legal authority to control pollutant discharges into and from its MS4 as specified in Section C.1 of the Order. The City will continue to ensure that it has the legal authority to require BMP implementation, to prohibit all identified illicit discharges which are not exempt pursuant to Section B.2 of the Order, to prohibit and eliminate illicit connections to the MS4, and to control the discharge of spills, dumping, and disposal of materials other than storm water to its MS4.

The City has local ordinances and Municipal Code sections that provide legal authority for enforcing urban runoff requirements. Details of the specific Municipal Code sections can be found in the Certification of Legal Authority letter in Appendix 2.

2.3 Certification of Legal Authority

The chief legal counsel of the City of Carlsbad has prepared a letter certifying that the City has adequate legal authority to implement and enforce the requirements contained in 40 CFR 122.26(d)(2)(i)(A-F) and RWQCB Order No. R9-2007-0001. This letter is included in Appendix 2.

2.4 Enforcement Procedures

The City is required to enforce its Municipal Code throughout the City. A stormwater enforcement action would typically occur as a result of an inspection or in response to a public or municipal investigation. The City employs several enforcement mechanisms and penalties to ensure compliance with its Municipal Code. The levels of enforcement and associated penalties are typically issued at the discretion of the Enforcement Official with consideration of relevant circumstances regarding the violation. The general process for applying enforcement for urban runoff related violations is described below.

It is always the City's intent to educate any individual or group of individuals prior to taking formal enforcement action, giving due process. While these measures typically escalate in enforcement action, they are not required to be issued in the exact order presented here. City enforcement officials will apply or recommend any of the enforcement steps as appropriate according to their best professional judgment. A discussion of these measures is provided below.

The enforcement mechanisms available to enforcement officials are as follows:

1. Verbal and/or Written Warnings;
2. Corrective Action Plan;
3. Notice to Clean, Test and/or Abate;
4. Notice of Violation;
5. Cease and Desist Orders or Stop Work Orders;
6. Administrative Penalties;
7. Administrative Hearing
8. Permits or License Suspension, Revocation, or Denial;
9. Declaration of a Public Nuisance;
10. Injunction/Abatement of Public Nuisance, and;
11. Civil and/or Criminal Penalties.

1. Verbal and/or written Warnings

A common initial method of requesting corrective action and obtaining compliance is a verbal or written warning to the responsible party. Verbal warnings from the enforcement official are often sufficient to achieve correction of the violation, often while the enforcement official is present at the site. After notifying the responsible party of the violation verbally or in writing, the enforcement official should document the violation and notification in the inspection or complaint file, and note any time frames given for correcting the problem or follow-up inspections, if needed. In judging the degree of severity, the City of Carlsbad enforcement official may also take into account any history of similar or repeated violations at the site.

Follow-up activities will be conducted as deemed necessary by the enforcement official or contracted staff, and may be necessary for any enforcement action listed below.

2. Corrective Action Plan

A corrective action plan may be issued to ensure that violations are corrected by specified deadlines.

3. Notice to Clean, Test and/or Abate

If the Enforcement Official finds any sediment, waste or pollutants leaving a property and entering the MS4 which may result in an increase in pollutants entering the City's storm water conveyance system in violation of the City ordinance, the enforcement official may issue orders and give written notice to remove the material in any reasonable manner.

4. Notice of Violation

A written Notice of Violation is used when verbal or written warnings are not deemed sufficient to correct the violation or additional documentation is warranted. The written Notice of Violation describes the infraction that is to be corrected and the required response or time frame(s) for correction. The notice is issued to the responsible party, and a copy is placed in the active inspection file. If the violation is corrected to the satisfaction of the Enforcement Official, the Enforcement Official will document compliance in the inspection file.

5. Cease and Desist Orders or Stop Work Orders

A City Enforcement Official may issue an order to cease and desist any discharge, practice, or operation that is occurring or is likely to cause violation(s) of the City ordinance.

Whenever any work is being done contrary to the provisions of the City ordinance, the City Enforcement Official may order the work stopped by notice in writing served on any person engaged in performing or causing such work to be done, and any such person shall immediately stop such work until authorized by the Enforcement Official to proceed.

6. Administrative Penalties/Citation

Because violations vary in threat to water quality, City Enforcement Officials may consider utilizing administrative citations for infractions or misdemeanors. Administrative Citations include fines with increasing value depending on the amount of the same preceding violations within a year. The Citation must be preceded by a Notice of Violation for the same violation within the previous year. The first violation involves a fine not exceeding one hundred dollars, the second violation involves a fine not exceeding two hundred dollars, and all subsequent violations include a fine not exceeding five hundred dollars.

7. Administrative Hearing

If a violation is not corrected within 10 days of the issuance of an order, the Enforcement Official may request the City Manager to appoint a hearing officer and fix a date, time, and place for hearing.

8. Permits or License Suspension, Denial, or Revocation

Violations of the City ordinance may be grounds for local permit or license denial, suspension, or revocation, including but not limited to building permits, right-of-way permits, grading permits, and conditional use permits.

9. Declaration of a Public Nuisance

Whenever an existing condition or a discharge into the storm water conveyance system violates the City ordinance, it is considered a threat to public health, safety, and welfare and may be declared a public nuisance. The Enforcement Official may follow appropriate procedures to recommend a declaration of a public nuisance by City Council in order to abate the nuisance discharge or condition.

10. Injunction/Abatement of Public Nuisance

Whenever a discharge into the storm water conveyance system is in violation of the City ordinance or otherwise threatens to cause a condition of contamination, pollution, or nuisance, the Enforcement Official may cause the City to seek a petition to the Superior Court for the issuance of a preliminary or permanent injunction, or both, or an action to abate a public nuisance, as appropriate in restraining the continuance of such a discharge.

11. Civil and/or Criminal Penalties

Parties responsible for violations of any provisions of the ordinance may be held liable for a civil penalty not to exceed two thousand five hundred dollars for each day such a violation exists. The Responsible Party may be charged for the full costs of any investigation, inspection, or monitoring survey which leads to the detection of any such violation, for abatement costs, and for the reasonable costs of preparing and bringing legal action under the City's ordinance, CMC Chapter 15.12.

Parties responsible for violations of any provisions of the ordinance may also be punished, upon conviction, by a fine not to exceed one thousand dollars for each day in which the violation occurs, or imprisonment in the San Diego County jail for a period not to exceed six months, or both.

3.0 NON-STORMWATER DISCHARGES

This section describes the City's approach to controlling the non-stormwater discharges identified in Order R9-2007-0001 Section B.2.

3.1 Significant Non-Stormwater Discharge Categories

None of the non-storm water discharge categories identified under Section B.2 have been determined by the City of Carlsbad to be a source of pollutants to waters of the U.S. located within Carlsbad jurisdictional boundaries.

3.2 Prohibited Non-Stormwater Discharge Categories

Since none of the non-storm water discharges identified under Section B.2 have been determined to be a source of pollutants to waters of the U.S. in Carlsbad, none of these categories will be prohibited or required to implement control measures to reduce the discharge of pollutants to waters of the U.S.

3.3 Control Measures for Allowable Non-Stormwater Discharges

Since none of the non-storm water discharges identified under Section B.2 have been determined to be a source of pollutants to waters of the U.S. in Carlsbad, none of these categories will be prohibited or required to implement control measures to reduce the discharge of pollutants to waters of the U.S. Therefore, no control measures have been identified for the above categories.

3.4 Program for Non-Emergency Fire Fighting Flows

The Carlsbad Fire Department (CFD) has developed the Non-Emergency Fire Fighting Program to meet the requirements of Order R9-2007-0001. This section describes the City's program to reduce pollutants from non-emergency fire fighting flows (i.e., flows from controlled or practice blazes and maintenance activities). By default, the non-emergency fire fighting flows are flows generated by the Fire Department other than emergency situations.

The CFD is a dedicated team of professionals whose mission is to enhance the quality of life in our community by delivering exceptional services in safeguarding lives, property and the environment. The duration of an emergency exists from alarm notification until, in the opinion of the Incident Commander, the emergency has concluded and equipment is returned to service. Outside of this duration of time, Fire Department flows are considered non-emergency.

The CFD will maintain a storm water manual specific to each fire station to serve as a central location for all storm water documents, training, and BMP descriptions, as well as departmental policies related to storm water. The BMPs incorporated at Fire Stations are listed below:

- The manuals include facility specific site maps, storm water inspection reports, facility specific spill response procedures, training records, department policies, and other related storm water compliance information.
- A written department policy on outside water use is followed and covers vehicle, hose, and equipment washing.

- Spill response equipment and materials are clearly identified and staged in accessible locations.
- Sweeping and removal of organic material from parking lots and walkways is completed on a weekly or as needed basis at all fire stations.
- The City's reclaimed water facility at 6220 Avenida Encinas is used for Fire Engineer training and testing. A training trailer was developed to facilitate engineer operations, pump testing, and other wet training opportunities.
- The Fire Department will continue to provide acceptable wet training opportunities for personnel, while ensuring that appropriate BMPs are in place to protect storm drains and eliminate discharges to the MS4.
- Awareness is heightened at fire scenes to minimize the potential for excessive water flow.
- Awareness is heightened at incident scenes to contain potential discharges (once the scene had been stabilized) to prevent pollutants from entering the storm drain system.
- The Fire Department will continue to implement the City's spill response procedure for incidents that occur on City streets.

The CFD will continue to communicate with other City departments to improve coordination and education with regards to storm water. The CFD's Storm Water Committee meets quarterly to address new and ongoing storm water topics and how they relate to the responsibilities of the Fire Department, and includes personnel from each Fire Department rank. Other activities CFD will continue to participate in include:

- Attending the City's Storm Water Committee meetings on a regular basis;
- Working closely with the Storm Water Protection Program to conduct a series of meetings to review BMP implementation and perform one-on-one training;
- Exploring CIP opportunities for potential funding for sewer connections at the fire stations to serve wash areas; and
- Working extensively with the design and construction committee for new fire stations to ensure that storm water requirements are addressed early in the process and met during and after construction.

The Fire Department will continue current annual training levels to ensure that all fire department personnel are versed in storm water as it relates to fire station and fire fighting activities.

3.5 Fire Prevention Program

Fire prevention is itself a Best Management Practice (BMP). Fire Prevention activities include those activities not directly associated with emergency scene operations, post fire scene or mop-up operations

Perhaps the most effective way to eliminate water runoff from fires is to eliminate or reduce the magnitude of fires. The fire department has shown that an aggressive fire prevention program has a significant impact on the number and magnitude of fires.

Procedures or actions that lead to early fire detection/notification, automatic suppression, confinement, or enhanced suppression capabilities can reduce or control fires and ultimately reduce water runoff. The installation and maintenance of these procedures, devices, or features can significantly reduce potential flows in the event of an emergency.

An example of this type of prevention is weed abatement which includes the encouragement of mowing. When mowing is not practical for perimeter breaks, roughing the slope in a manner that would not increase soil or sediment releases will be utilized, such as disking. The topography will be taken into account when selecting the method employed.

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4.0 DEVELOPMENT PLANNING COMPONENT

4.1 Introduction

This section describes the responsibilities of staff with respect to implementation of the Development Planning Component of the JURMP. This program is intended to: (1) reduce Development Project discharges of pollutants from the MS4 to the MEP; (2) prevent Development Project discharges from the MS4 from causing or contributing to a violation of water quality standards, and; (3) manage increases in runoff discharge rates and durations from Development Projects that are likely to cause increased erosion of stream beds and banks, silt pollutant generation, or other impacts to beneficial uses and stream habitat due to increased erosive force.

The development planning process is a comprehensive process that includes planning, engineering, construction and post-construction phases. Each phase includes review, conditional requirements and verification that the requirements have been satisfied. The construction portion of the development process is described in Section 5.0 of the JURMP. Because the development process weaves through various phases, there are several City Departments/Divisions involved in the development process, including Planning, Redevelopment, Engineering Development Services, Engineering Construction Inspection, Fire and Building.

4.2 Land Use Planning

4.2.1 Background

The City is tasked with ensuring that land uses in Carlsbad comply with City codes, the General Plan, Council policies, Engineering Standards and state law requirements. Approval of projects through the discretionary review process is generally but not always required prior to issuing grading, building and right-of-way permits. The City Code requires compliance with storm water requirements for all discretionary approvals and ministerial permits. The Planning, Engineering, Redevelopment, Building and Fire Departments administer the storm water program requirements for all discretionary approvals and ministerial permits issued for private development. The Engineering and Public Works Maintenance Departments administer all aspects of design and construction for public improvement projects. The Planning Department administers the environmental review of both public and private projects.

4.2.2 Program Implementation

After issuance of Orner No. R9-2007-0001, the City reviewed its General Plan and Municipal Codes and determined that the changes made in 2002 to the General Plan continue to satisfy the requirements of Order R9-2007-0001.

The following is a description of the General Plan components that have been reviewed and modified in the past to incorporate the appropriate water quality protection directives.

In September, 1994 the City of Carlsbad adopted a Comprehensive Update of its General Plan. The City's General Plan includes goals that balance environmental protection with smart, long-term economic growth. By laying out a clear vision for environmentally sensitive development within this coastal community, development projects are required

to be consistent with a variety of City ordinances (i.e.; Grading and Erosion Control, Stormwater Management, Hillside Development, Coastal Resource Protection) and other state and federal regulatory requirements.

In July 1986, the City of Carlsbad adopted a growth management plan into its General Plan to guide development and anticipate the types and numbers of facilities needed to accommodate the Carlsbad community at build out. Those facilities include sewer plant capacity, sewage pipelines, reclaimed water system, and storm drain system with flood and pollution control basins.

The General Plan is reviewed and revised annually to ensure that the public interest is considered and City goals are met. In February, 2002 the City Council adopted General Plan Amendment (GPA 01-15). This General Plan Amendment revised/supplemented various policies regarding water quality protection in the Open Space and Conservation Element of the Carlsbad General Plan. The new policies reflect water quality and watershed protection policies and principles found in Order R9-2007-0001 pertaining to water pollution. The revised policies and programs are listed below:

1. Develop and implement a Jurisdictional Urban Runoff Management Program (JURMP) consistent with the Regional Water Quality Control Board Order No. 2001-01 and any amendments thereof, i.e., Order R9-2007-0001.
2. Adopt and implement a Master Drainage Plan and Standard Urban Storm Water Mitigation Plan (SUSMP) consistent with the Regional Water Quality Control Board Order No. 2001-01 and any amendments thereof, i.e., Order R9-2007-0001.
3. Prior to making land use decisions, utilize methods available to estimate increases in pollutant loads and flows resulting from projected future development. The City shall require developments to incorporate structural and non-structural best management practices (BMPs) to mitigate the projected increases in pollutant loads.
4. Implement water pollution prevention methods to the maximum extent practicable, supplemented by pollutant source controls and treatment. Use small collection strategies located at, or as close as possible to, the source (i.e., the point where water initially meets the ground) to minimize the transport of urban runoff and pollutants offsite and into a municipal separate storm sewer system (MS4).
5. Post-development runoff from a site shall not contain pollutant loads which cause or contribute to an exceedance of receiving water quality objectives or which have not been reduced to the maximum extent practicable.
6. Developments shall implement appropriate recommendations to protect water quality found in the San Diego Association of Government's (SANDAG's) Water Quality Element of its Regional Growth Management Strategy.
7. Development projects should be designed to comply with the following site design principles:
 - Protect slopes and channels to decrease the potential for slopes and/or channels from eroding and impacting storm water runoff.

- To the extent practicable, cluster development on the least environmentally sensitive portions of a site while leaving the remaining land in a natural undisturbed condition.
- Preserve, and where possible, create or restore areas that provide important water quality benefits, such as riparian corridors, wetlands and buffer zones. Encourage land acquisition of such areas.
- Provide buffer zones for natural water bodies.
- Minimize the amount of impervious surfaces and directly connected impervious surfaces in areas of new development and redevelopment.
- Where feasible implement site design/landscape features to slow runoff and maximize on-site infiltration of runoff.
- Properly design outdoor material storage areas (including the use of roof or awning covers) to minimize the opportunity for toxic compounds, oil and grease, heavy metals, nutrients, suspended solids and other pollutants from entering the MS4.
- Incorporate roof or awning covers over trash storage areas to prevent off-site transport of trash and other pollutants from entering the MS4.
- Limit disturbances of natural water bodies and natural drainage systems caused by development including roads, highways and bridges.
- Design streets and circulation systems to reduce pollutants associated with vehicles and traffic resulting from development

The City is currently undertaking a comprehensive update of its General Plan. As a component of this update, the above-noted water quality and watershed protection policies and low impact design principles will be moved from the Open Space and Conservation Element to the Land Use Element.

The City has adopted a Local Coastal Program covering that part of the City within the Coastal Zone. Under the California Natural Community Conservation Program (NCCP), the City of Carlsbad and six other cities in northern San Diego County participated in the preparation of the Multiple Habitat Conservation Program (MHCP). The MHCP is a comprehensive planning program designed to develop an extensive ecological preserve in northwestern San Diego County. The City of Carlsbad, a participant in the MHCP, prepared a subarea plan, called the Carlsbad Habitat Management Plan (HMP) that was adopted in November, 2004. The HMP contains the specific conservation, management, facility planning, land use, and other actions the City will take to implement the goals, guidelines, and standards of the MHCP plan. This HMP will prohibit development in or near natural habitat areas including the City's creeks and lagoons. Those areas will act as a buffer between urban development pollutants and receiving waters. They will also protect a significant percentage of the City as pervious surface to absorb run off.

On February 21, 2001 the Carlsbad City Council adopted a Zone Code Amendment (ZCA 01-08), Local Coastal Program Amendment (LCPA 01-15) and Municipal Code Amendments (MCA 01-05, 01-06, and 02-01) to revise/add new policies, standards, procedures and requirements regarding water quality and watershed protection to the City's Local Coastal Program Land Use Plans, Chapters 21.203 (Coastal Resource

Protection Overlay Zone) and 21.205 (Coastal Resource Overlay Zone Mello I LCP Segment Local Coastal Program) of the Zoning Ordinance and Chapter 15.12 (Storm Water Management and Discharge Control) and Chapter 15.16 (Grading and Erosion Control) of Carlsbad's Municipal Code. On November 1, 2002, the revised Zoning Ordinance, Municipal Code, and Local Coastal Plan Amendments were submitted to the California Coastal Commission. In August, 2006 the California Coastal Commission finally approved these municipal code amendments. Carlsbad is one of the first coastal cities in San Diego County to have their amended NPDES /storm-water regulations approved by the Coastal Commission.

4.3 Environmental Review Process

The City's Environmental Review Process begins with the Initial Study Checklist (CEQA Guidelines). Based on the results of the checklist, the City requires the project applicant to provide additional studies to elaborate on the environmental impacts or recommend denial of the permit that the project applicant is seeking. The Initial Study Checklist includes specific hydrology and water quality analysis as follows:

HYDROLOGY AND WATER QUALITY. <i>Could the project:</i>
a. Violate any water quality standards or waste discharge requirements, including but not limited to increasing pollutant discharges to receiving waters (Consider temperature, dissolved oxygen, turbidity, and other typical storm water pollutants)?
b. Have potentially significant adverse impacts on ground water quality, including but not limited to substantially deplete groundwater supplies or interfere substantially with groundwater recharge such that there would be a net deficit in aquifer volume or a lowering of the local groundwater table level (e.g., the production rate of pre-existing nearby wells would drop to a level which would not support existing land uses or planned uses for which permits have been granted)?
c. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in substantial/increased erosion or siltation on- or offsite?
d. Substantially alter the existing drainage pattern of the site or area, including through the alteration of the course of a stream or river, or substantially increase the rate or amount of surface runoff in a manner that would result in flooding on- or off-site and/or significant adverse environmental impacts?
e. Cause significant alteration of receiving water quality during or following construction?
f. Cause an increase in impervious surfaces and associated runoff?
g. Cause potentially significant adverse impact on ground water quality?
h. Cause or contribute to an exceedance of applicable surface or ground water receiving water quality objectives or degradation of beneficial uses?
i. Is the project tributary to an already impaired water body, as listed on the Clean Water Act Section 303(d) list of impaired waterbodies. If so, can it result in an increase in any pollutant for which the water body is already impaired?
j. Create or exacerbate already existing environmentally sensitive areas (ESAs)?
k. Create potentially significant environmental impact on surface water quality, to either marine, fresh, or wetland waters?
l. Impact aquatic, wetland, or riparian habitat?

4.4 Development Project Approval and Verification Process

4.4.1 Source Characterization

Land Development in the City of Carlsbad consists of various types of projects, ranging from single family homes and large housing sub-divisions to commercial and industrial projects. Because Land Use Planning addresses all development projects, including municipal capital projects, essentially all pollutants of concern, sources and activities are addressed through this program component.

The Planning Component is the stage of the development process where storm water quality issues are initially assessed and the project is designed to eliminate or minimize the negative impacts to storm water quality. It is therefore, of the utmost importance to properly and effectively implement the requirements of this component.

4.4.2 Best Management Practice Requirements

Each land development project in the City is required to meet the minimum requirements of incorporating both site design and source control BMPs. Some projects are Priority Development Projects, per Order R9-2007-0001 (Section D.1.d.(1)) and require additional Treatment Control BMPs to be incorporated into the project.

Site design BMPs (a.k.a. Low Impact Development Site Design BMPs) are intended to mimic a project site's pre-project hydrology by using design features and elements to effectively capture, filter, store, evaporate, detain and infiltrate runoff within the development footprint.

Source control BMPs are intended to control the sources of pollutants – not allowing for the pollutants to come into contact with runoff or to be discharged from a development site. Source control BMPs are sometimes physical features and elements, however, they are often practices that are implemented to counteract or modify the actions taken by residents, businesses and employees that may cause pollution.

Treatment control BMPs are considered part of the tools available to treat runoff from developments that have been determined to be a threat to water quality, based on existing water quality conditions or the activities associated with the development. These BMPs are considered a necessary part of controlling pollutants from entering the receiving waters, however, emphasis should be placed on site design and source control BMPs.

The City, in cooperation with the other Copermittees under the San Diego Municipal Permit, developed and adopted a Model Standard Urban Stormwater Mitigation Plan (SUSMP) for the entire region that was collectively adopted by the Copermittees. Order R9-2007-0001 requires an update to the Model SUSMP and the City has participated in the updating process. Once the Model SUSMP is finalized, the RWQCB will have the opportunity to review and provide comments prior to the City making recommendations to adopt the changes reflected in the updated Model SUSMP.

The City's local SUSMP implementation document, The City of Carlsbad Storm Water Standards Manual hereinafter referred to as "Storm Water Standards Manual", identifies specific post-construction site design, source control and treatment control storm water BMPs that must be incorporated into the Priority Development Projects. The City has updated its Storm Water Standards Manual to incorporate appropriate requirements in response to Order R9-2007-0001. The Storm Water Standards Manual provides information on selection and implementation of the site design, source control and treatment control BMPs.

In addition to participating in the Model SUSMP update, the City is participating in the development of the regional Hydromodification Management Plan (HMP). The HMP, similar to the Model SUSMP document, will require that development projects incorporate BMPs into their design to maximize infiltration and mimic pre-project hydrologic characteristics. Once the HMP is complete and acceptable to the RWQCB, the City will revise its JURMP and Storm Water Standards Manual to reflect the HMP requirements.

4.4.3 Program Implementation

The City relies on its Grading and Stormwater Runoff Control and Drainage codes as the foundation for its development planning implementation. The Municipal Code requires new development and significant redevelopment projects to incorporate into their project plans and specifications, stormwater best management practices to control stormwater pollution and potential impacts to downstream channels from erosive flows.

The development process is comprehensive in that it encompasses planning, engineering and building plan check, construction, inspection and final verification of construction to ensure Municipal Permit requirements are met. A description of how stormwater program requirements are implemented throughout this process is described in the sub-sections below.

If a project is determined to be a Priority Project, the SUSMP treatment control BMP requirements become an integral part of the project. Figure 4-1 is a matrix showing the City's current process for implementation of development requirements.

The City has developed a database to track the information required of the Treatment Control BMP Maintenance element of the program. Initial project information is tracked in the early planning phases of the project. As more definitive data and information is developed, it is incorporated into the database for tracking and inspection purposes.

Figure 4-1 Storm Water Compliance Process for Development Activities

Development Process Stage	Storm Water Compliance Activities		
	Activity Description	Developer Handouts/References	City Checklists/References
Conceptual Project Design	Developer determines project SUSMP priority and begins project layout and design. For priority projects preliminary SWMP is prepared	<ul style="list-style-type: none"> • SUSMP Compliance Questionnaire • Storm Water Standards Manual 	None
Pre-application meeting	Applicant meets with staff to get input on conceptual project layout including storm water compliance issues.	<ul style="list-style-type: none"> • SWMP Fact Sheet 	<ul style="list-style-type: none"> • Preliminary site plan checklist
Application for Discretionary Review	City staff review application package for completeness of submittal including storm water compliance documents	<ul style="list-style-type: none"> • Project Application Submittal Checklist 	<ul style="list-style-type: none"> • Project Application Submittal Checklist
Application Review	City staff review application site plans and accompanying reports and documents including any SWMP, geotechnical and hydrology/hydraulic reports	None	<ul style="list-style-type: none"> • Site plan review checklist • SWMP checklist
Discretionary Approval	City staff deny project or approve project with conditions including storm water compliance conditions	<ul style="list-style-type: none"> • Project Conditions of Approval 	<ul style="list-style-type: none"> • Standard conditions of approval
Final Project Design	Developer prepares project construction plans including grading, improvement, landscape and building detailing required BMPs. Construction SWPPP is prepared and SWMP is finalized.	<ul style="list-style-type: none"> • Storm Water Standards Manual • Project Conditions of Approval 	None
Construction Plan Check Application Submittal	City staff review application package for completeness of submittal including storm water compliance documents	<ul style="list-style-type: none"> • Plan Check Application Submittal Checklist • Project Threat Assessment Worksheet 	<ul style="list-style-type: none"> • Plan Check Application Submittal Checklist • Project Conditions of Approval
Construction Plan Check Review	City staff review construction plans and accompanying reports and documents including any SWMP, SWPPP, geotechnical and hydrology/hydraulic reports	None	<ul style="list-style-type: none"> • Construction Plan Checklist • SWMP Checklist • SWPPP Checklist
Construction Plan Approval	City approves construction plans and accompanying SWPPP and SWMP	<ul style="list-style-type: none"> • Plan check completion letter • BMP Maintenance Agreement 	None
Ministerial Permit Issuance	City issues permits for construction activities including grading, improvement, building, demolition and blasting. Storm water compliance requirements noted on permit.	<ul style="list-style-type: none"> • Pollution Prevention Guide for the Construction Industry • SWPPP Fact Sheet • Construction Threat Assessment Worksheet 	<ul style="list-style-type: none"> • Plan check completion letter
Preconstruction Meeting	City meets with contractor and other parties to review project construction issues, schedule, storm water BMP implementation, monitoring and testing requirements	<ul style="list-style-type: none"> • SWPPP • SWMP • Construction plans 	<ul style="list-style-type: none"> • Preconstruction checklist • SWPPP • SWMP • Construction plans
Construction and Inspection	Developer constructs project including temporary and permanent BMPs. City inspectors enforce compliance with SWPPP, SWMP and Municipal Permit	<ul style="list-style-type: none"> • SWPPP • SWMP • Construction plans 	<ul style="list-style-type: none"> • SWPPP • SWMP • Construction plans
Project Completion	Construction completion, plans “as-built”, securities released, BMP construction verified	<ul style="list-style-type: none"> • Punch list 	<ul style="list-style-type: none"> • SWPPP • SWMP • Construction plans
Post Construction Annual Treatment Control BMP Inspections	Property owners submit annual verification of effective operation and maintenance of installed treatment control BMPs. City staff inspects project sites with installed treatment control BMPs to verify compliance with storm water requirements.	<ul style="list-style-type: none"> • SWMP • BMP Maintenance Agreement 	<ul style="list-style-type: none"> • SWMP • BMP Inventory List • Site BMP Inspection Report

4.4.3.1 Planning Phase

The Planning Phase is a critical phase in the development process for ensuring that storm water low impact development (LID) measures are incorporated. In prior years, the Planning Phase was typically initiated upon developer submittal of a preliminary project review or formal project application to City staff for review. From this point forward, the City will be emphasizing to developers the importance of incorporating LID principles into the initial conceptualization and design of a development project. By focusing developer efforts on early incorporation of LID, the City hopes to avoid costly and time consuming project redesign and an over reliance upon the type of end of pipe treatment control solutions utilized by developers in past years.

The City revised its Development Application Storm Water Standards Questionnaire to include, among other changes, a notification to developers that the form should be filled out prior to or concurrent with initial project conceptualization and layout. In this way, project designers can take full advantage of LID principles as the project design progresses. City will actively seek to educate developers, engineers and land planners about the importance of early incorporation of storm water LID principles through a combination of handouts, meetings and seminars.

After initial conceptualization of a project development, the owner/developer/applicant has the option of submitting the project for preliminary or pre-application review by City staff. The City will review the conceptual project plans for conformance with codes, policies and standards, and return a written response to the applicant detailing the City's initial concerns and issues with the project, including any storm water compliance issues. The preliminary review process may also include a pre-application meeting wherein the applicant and City staff meet to discuss the City's concerns and issues with the proposed project.

Upon completion of the conceptual design process, the developer/owner/applicant is ready to submit a formal discretionary review application(s) to the City Community Development Major Service Area (Engineering Department for minor subdivisions or Planning Department for all other applications) for review and processing. The formal project application must include all appropriate stormwater program documents for the project application to be deemed complete. These documents include the following which can be found in the City's Storm Water Standards Manual in Appendix 4-A:

- Development Application Storm Water Standards Questionnaire (priority project determination)
- Preliminary Storm Water Management Plan (SWMP) (if required)

The Planning Department maintains coordination with the project proponent throughout the permitting process. The Planning Department reviews the conceptual project and informational studies and determines the governing authority for the review process – Administrative, Planning Commission, Housing and Redevelopment Commission or City Council. Planning, Building, Engineering, Public Works, Fire and other various departments will review the conceptual plans and technical studies for various issues, including water quality. The various departments provide the Planning Department with

specific project conditions for permit approval that address the project issues, including water quality. The City maintains a list of standard conditions, including storm water compliance conditions, that are applied to project conditions of approval as applicable.

Once a project has been conditioned, the project staff report and conditions of approval are forwarded to the governing authority for decision. The governing authority may then deny, approve or conditionally approve the project. Upon discretionary approval, the project proponent may begin the plan check process.

4.4.3.2 Plan Check Phase

During the plan check phase, the project proponent submits plans and studies that describe the proposed project in detail. Several departments review the projects for conformance with the conditions of approval, engineering standards, zoning codes, landscape standards, building codes and other City requirements. Once the plan check process is complete and the project plans are approved for the applicable permits, the permit(s) are issued and construction of the permitted portion of the project may begin.

This part of the process includes the submittal of the final Storm Water Management Plan (if required) that demonstrates that all required site design, source control and treatment control BMPs have been incorporated. The specific requirements of the SWMP are provided in the City's Storm Water Standards Manual – see Appendix 4-A. This part of the process also includes submittal of a Construction Storm Water Pollution Prevention Plan (SWPPP) that identifies and evaluates sources of pollutants associated with construction activities and describes site-specific BMPs to reduce or prevent pollutants associated with construction activities in storm water discharges and authorized non-storm water discharges from construction sites. For more details regarding the processing of Construction SWPPPs see Section 5.4.1

All projects will be assigned a post-construction inspection priority level based on the criteria and process described in the Storm Water Standards Manual. This post-construction inspection priority level is used during post construction for the purpose of determining the frequency at which the treatment control BMPs are inspected for maintenance and effectiveness.

The City has adopted a new approach for ensuring verification that all permanent post construction BMPs are constructed per the requirements of the approved SWMP. Approved post construction BMPs are incorporated onto numerous separate and distinct construction drawings including mass grading plans, finish grading plans, building plans, improvement plans and landscape plans. Each of these plan sets may be reviewed by different City or consultant staff and be inspected during construction by different construction inspectors over extended periods of time. To ensure that all permanent post construction BMPs for a particular project are installed by the conclusion of the project, the City is requiring developer preparation of a single plan BMP sheet as part of the SWMP.

The single plan BMP sheet will include a site plan of the project detailing the location of each required LID site design, source control and treatment control BMP. In addition, the plan will contain a matrix listing of the required BMPs cross referenced with a list of the specific construction drawing where the specified BMP construction is detailed. A copy of the single plan BMP sheet will be attached to each construction drawing highlighting only those BMPs included with the referenced construction drawing.

At the conclusion of project construction, before occupancy permits are granted or construction securities are returned, a City inspector will make a final inspection of the construction site using the single plan BMP sheet to verify installation of all required BMPs for the project. The single plan BMP sheet will also be used to verify that all structural BMP elements are incorporated into the City's watershed based inventory.

4.4.3.3 Construction Verification Process (Prior to Occupancy and release of Bonds)

Construction Inspectors inspect the construction and installation of BMPs that are associated with engineering permits (grading permits and public improvement permits) and Capital Improvement Program (CIP) projects. The Construction Inspectors review the projects for compliance with the water quality requirements for the project and the storm water ordinances. For Capital Improvement Projects that are Priority Development Projects, enforcement will be withholding operational acceptance or notification of completion until it is verified that post-construction BMPs are installed.

Building Inspectors inspect the construction and installation of BMPs that are associated with private development that requires a demolition or building permit. For Priority Development Projects that are private developments, the Certificate of Occupancy will not be issued unless the BMPs have been inspected and signed off as being constructed properly.

Prior to certifying a project ready for occupancy (one of the final project releases) or releasing the applicant's bonds, the City will verify that each post-construction BMP that was to be incorporated has been installed per City requirements. Based on the single plan BMP sheet approach described above, Engineering Inspection and the Building Department Inspection will have key items to review and confirm their construction on the plan sheet itself.

4.4.3.4 Post-Construction Phase

The City will implement a watershed-based database to track and inventory treatment control BMPs and treatment control BMP maintenance within the jurisdiction. The database shall be used to verify that treatment control BMPs are regularly maintained by the parties responsible. Post-construction inspection priority for each project site shall be based upon the types of BMPs installed with the project. The post-construction inspection priority is assigned during preparation of the SWMP in accordance with the City SUSMP requirements.

The City's existing treatment control BMP database is ESRI compatible and fully GIS based. The City will complete any modifications to the database as required to track the

treatment control BMP as required per the updated Municipal Permit requirements. The City will work with its Information Technologies staff to determine the best software program to use for tracking and maintaining inspection records. The City currently has two separate inspection record keeping software programs available for this purpose. Once the decision is made regarding the most appropriate software program to use, the City will proceed with setting up the required inspection tracking and reporting program.

The treatment control BMP information for the database is collected during the plan check process using information provided by the project applicant. The existing database includes a host of information regarding treatment control BMPs collected for all projects approved since 2001, including following:

1. Geographic Location (northing and easting)
2. BMP Type (CASQA identifier)
3. BMP Description (general type description)
4. BMP detail (specific type description)
5. BMP Manufacturer, if applicable
6. BMP Model No.or manufacture code if applicable
7. BMP installation date
8. Inspection frequency
9. Maintenance frequency
10. Maintenance agreement, if provided
11. Watershed
12. Owner
13. Owners address

A copy of the current treatment control BMP inventory is included as Appendix 4-B.

Annual Inspection Program

Based on the project BMP priorities determined during the plan-check phase, the City will inspect treatment control BMPs on the following schedule:

- High Inspection Frequency Priority – 100% of BMPs Inspected Annually
- Medium Inspection Frequency Priority – 50 % of BMPs Inspected Annually
- Low Inspection Frequency Priority – BMPs will be Inspected on an As-Needed Basis

Annually, the City will review project sites with treatment control BMPs in accordance with the inspection requirements noted above. At a minimum, the City will inspect 20% of the total number of projects with treatment control BMPs and a maximum of 200% of the average number of projects with treatment control BMPs approved per year. These inspections will be completed prior to October 1st each year.

The inspection process will include records review prior to a site inspection. The inspector will use the inspection forms that are included in the Storm Water Standards Manual to review the site for the following:

- Properly maintained BMP

- Effective operations of the BMP(s)

Annual Verification Program

The City has developed an annual verification of effective operation and maintenance of constructed treatment control BMPs. It is anticipated that there will be a learning curve for responsible parties as they have not been required to provide verification as to the maintenance and operation of the treatment control BMPs within their purview. The City will likely cooperate with the responsible parties for the first year of the verification program implementation.

The City's treatment control BMP verification program will utilize the following steps to verify the effective operation and maintenance of each treatment control BMP constructed under the City's SUSMP process:

1. Utilize the treatment control BMP inventory to create a list of sites, responsible parties, addresses and the associated BMPs.
2. Annually mail out a verification form to be returned to the City. The form will include the following information:
 - a. BMPs to be verified
 - b. Description of maintenance taken during previous year
 - c. Requirement to supply information to demonstrate maintenance and/or operating status (vendor invoices, photos etc.)
 - d. Certification from the responsible party that the BMP(s) were maintained and are operating
3. In the event that a responsible party does not respond the City may use its enforcement authority to escalate efforts.

5.0 Construction Component

5.1 Introduction

The objective of this program is to minimize the impacts of construction activity on receiving waters within the City of Carlsbad (City). In accordance with Section D.2. of Order R9-2007-0001, this section describes the City's stormwater protection and urban runoff management program as it relates to construction activity and its potential associated runoff and pollutants.

5.2 Source Characterization

Construction sites include any site where an activity such as grading, excavation, clearing, structure and road construction, or demolition results in a disturbance of soil. Sources identified by the City of Carlsbad include: City-issued Construction Permits, and Capital Improvement Program (CIP) Projects.

A watershed-based inventory of construction sites is updated monthly as required by Order R9-2007-0001 Section D.2.b. The Construction Management and Inspection Division (CM&I) of the Engineering Department maintains the inventory of construction sites throughout Carlsbad. The database is maintained in Permits Plus software. At a minimum the inventory includes the following information for each project:

- Location Information (APN, Address, WMA and HA);
- Permit Information (Grading Permit, Planning Case Number);
- Project Information (Name, Type, Area, Start Date);
- Priority;
- Percent Complete;
- Site Contact (Name & Number);
- 24-Hour Contact Number;
- State General Construction Permit Information (NOI, SWPPP, WDID), and;
- Developer/Engineer/Contractor Contact Information.

A copy of the current construction activity inventory is included as Appendix 5.

5.2.1 Threat to Water Quality Prioritization

For the purposes of determining the frequencies of inspection during the wet season (October 1st through April 30th) the following rationale and methodology are used. One of three inspection frequency priorities is assigned to projects: high; medium, or; low. Based on the inspection frequency priority, minimum inspection frequencies are assigned to projects. The inspection frequency priority is determined by City staff at time of permit issuance and entered into the permit database. The database is used to automatically generate inspection request based upon the assigned inspection frequency priority. The database is also used to track and report out inspection histories including enforcement actions and follow-up inspections. See section 5.5 for more details on project inspection frequencies and procedures.

The application for a construction permit (grading, building or right-of-way) includes submittal of a completed Construction Threat Assessment Worksheet for Determination of Threat to Storm Water Quality included as Appendix C to Section 3 (Construction

SWPPP Standards and Requirements) of the City's Storm Water Standards Manual found in Appendix 4-A of this JURMP.

At a minimum, the following project types will be considered high priority for the purposes of inspection frequency as described in Section 5.5:

- All sites 50 acres or more in size and grading will occur during the wet season, or
- All sites 1 acre or more, and tributary to a CWA section 303(d) water body segment impaired for sediment or within or directly adjacent to or discharging directly to a receiving water within an ESA.
- Other projects may qualify as high priority for the purposes of inspection frequency based on the following criteria:
 1. Project Size
 2. Planned Period of Grading
 3. Vicinity of the Project to Environmentally Sensitive Water Bodies
 4. Project Type
 5. Past Record of Compliance by the Operators of the Construction Site
 6. Presence of Significant Erodible Slopes
 7. Potential to Produce Significant Non-Stormwater Discharge or Pollutants

At a minimum, the following project type will be considered medium priority for the purposes of inspection frequency as described in Section 5.5:

- All sites with one acre or more of soil disturbance not meeting the criteria specified above for high priority construction sites

At a minimum, the following project type will be considered low priority for the purposes of inspection frequency as described in Section 5.5:

- Tier 1 projects

The evaluation of the above criteria is described in more detail in the Construction SWPPP Standards and Requirements Section of the Storm Water Standards Manual found in Appendix 4-A of this JURMP.

5.2.2 Inventory Updates

Updates to the construction site inventory are managed by CM&I Division as described below:

The Engineering Department Development Services Division updates the inventory of new grading, building and right-of-way construction permits in Permits Plus at permit issuance including entry of appropriate construction inspection frequency priority. The CM&I Division inspection staff access the Permits Plus program to generate inspection requests, update inspection records and record any enforcement actions and follow-up inspection work. The CM&I Division staff are responsible for updating and maintaining the inventory from permit issuance throughout project completion. The CM&I Division verifies all updates to the inventory on a monthly basis.

The construction managers in the CM&I Division maintain an inventory of CIP projects that are in construction using the Permits Plus program. The CM&I Division maintains an electronic inventory that contains the most current information including when a site was last inspected, the current construction status and inspection frequency priorities. This electronic record is updated through weekly reports from the CM&I Division administration staff and the information is routinely transferred into a reporting spreadsheet.

5.3 Ordinance Updates

5.3.1 Grading Ordinance Update

The City's Grading Ordinance, Municipal Code Chapter 15.16 Grading & Erosion Control, is being updated. The Grading Ordinance is also currently undergoing additional revisions resulting from other non-stormwater issues.

In general, the stormwater related revisions to this ordinance include addition of text to: (1) incorporate requirements of Order R9-2007-0001; (2) provide consistency between the Grading Ordinance and Storm Water Ordinance; and, (3) authorize the creation of and establishment of standards and fees for a three tiered Construction SWPPP process. The purpose of these revisions are threefold: (1) to ensure erosion control information contained in the grading ordinance is consistent with the Stormwater Ordinance which provides the detailed requirements for erosion control and all other required BMPs; (2) to ensure that project proponents will reference and use the City's Stormwater Ordinance for comprehensive site management and permit compliance; and (3) provide authority for the establishment of new fees for the proposed three tiered Construction SWPPP process. The revisions also provide authority for post-construction BMP inspection on private property and requires responsible parties to provide annual verification of effectiveness and maintenance of treatment control BMPs.

5.4 Best Management Practice Requirements

5.4.1 BMP Requirements

5.4.1.1 Pollution Prevention

The City's construction component emphasizes pollution prevention during both the preconstruction and the onsite construction phases of projects. All new construction projects are required to prepare and submit an appropriate Construction SWPPP in accordance with the City Storm Water Standards Manual as part of the construction plan check process. The Construction SWPPP is reviewed and approved by Engineering Development Services Division staff prior to issuance of construction permits for a project. The approved Construction SWPPP must comply with City Standard requirements and all applicable requirements of the General Construction Permit and the General Linear Utility Permit.

Any required preconstruction storm water requirements are expected to facilitate onsite pollution prevention once construction activity commences. Pollution prevention practices are required at all project sites during construction. In accordance with the City's Stormwater Ordinance (Municipal Code Chapter 15.16), project proponents, which

may include owners, developers and/or contractors, are required to implement a system of minimum best management practices (BMPs) onsite year-round. Erosion control practices must be implemented by contractors as the most important “first line of defense” BMPs. Supplemental to erosion control BMPs, the remaining BMP system components include sediment control and management of onsite practices, materials and potential pollutants. These requirements are applicable to capital improvement projects (CIPs), private development projects, and utility projects.

5.4.1.2 Construction BMPs

The City’s Storm Water Standards were revised and revamped to: (1) accommodate the requirements of the updated Municipal Permit; (2) consolidate construction BMP standards into one location; (3) clarify existing standards and incorporate the new standards; and, (4) incorporate the requirements of the General Construction Permit, the General Linear Utility Permit and the General Industrial Activity Permit. The new manual consolidates all storm water BMP standards for post construction, construction and business activity requirements into one comprehensive manual entitled the “City of Carlsbad Storm Water Standards Manual” hereinafter referred to as “Storm Water Standards Manual”.

The new Storm Water Standards Manual is comprised of four primary sections as follows;

1. Section 1 – Introduction
2. Section 2 – Storm Water Management Plan (SWMP) Standards includes standards and requirements for the preparation of permanent post construction BMPs including post construction inspection and inventory maintenance requirements. This section is based upon the Copermittees’ revised interim model SUSMP document.
3. Section 3 – Construction Storm Water Pollution Prevention Plan (SWPPP) Standards – includes standards and requirements for the preparation of a Construction SWPPP in accordance with the Municipal Permit, General Construction Permit and General Linear Utility Permit.
4. Section 4 – This Section is currently reserved for the Business Activity Storm Water Pollution Prevention Plan (SWPPP) Standards.

Section 3 of the Storm Water Standards Manual specifically addresses the need for temporary BMPs during construction activities to minimize the mobilization of pollutants such as sediment and to minimize the exposure of storm water to pollutants. The standards and requirements described in Section 3 were established to ensure construction compliance with City of Carlsbad Storm Water Ordinance, the Municipal Permit, the General Construction Permit and the General Linear Utility Permit. Owner/Developers must comply with all sections of the manual to ensure full compliance with both construction and post construction storm water requirements.

Pursuant to Titles 11, 15 and 18 of the Carlsbad Municipal Code, all construction activities within the City whether permitted or not are subject to the standards and requirements of the Storm Water Standards Manual. Construction activities that meet one

of the following criteria are additionally subject to the requirements of the General Construction Permit.

Construction activities that:

- 1) Disturb one or more acres of land area;
- 2) Form part of a larger common plan of development that encompasses one or more acres of soil disturbance; or
- 3) Have the potential for significant water quality impairment.

Construction of linear utility facilities that are not subject to the General Construction Permit are subject to the requirements of the General Linear Utility Permit. This includes but is not limited to construction of any conveyance pipe for transportation of gaseous, liquid, liquescent or slurry material; any cable line or wire for the transmission of electrical energy; any cable line or wire for communications; and, associated ancillary facilities. Developers/owners/contractors are directed to confirm with the SDRWQCB staff whether or not a particular underground or overhead utility construction project is subject to the General Linear Utility Permit.

Every construction activity within the City that has the potential to negatively affect water quality must prepare a construction Storm Water Pollution Prevention Plan (Construction SWPPP). To maintain compliance with the various State and Regional permitting regulations, the City established a three tiered system for the preparation of a Construction SWPPP. The tiers range from most potential for storm water impacts (Tier 3) to the least potential for storm water impact (Tier 1) as described in more detail in Section 5.5.2.1 below.

The Storm Water Standards provides a listing of the minimum BMPs for general site management, erosion, and sediment controls, as required in Order R9-2007-0001 section D.2.a(2).

It is the responsibility of the project proponent to select, install and maintain appropriate BMPs. BMPs must be installed in accordance with an industry recommended standard (for example: Caltrans or California Stormwater BMP handbooks) or in accordance with the State's General Permit for Construction Activities.

The City requires that at a minimum, BMPs from each subcategory below are installed and maintained for all grading and building projects. The responsible parties must implement an effective combination of BMPs to prevent minimize onsite erosion to the MEP and to prevent sediment from leaving the project site. Depending on project scope and potential associated discharges, additional BMPs may be needed. If the project proponent proposes to use a BMP not listed below, approval from the City is required prior to installation.

- Erosion Control
- Perimeter Protection
- Sediment Control

If a BMP is selected and implemented, but fails in actual use causing sediment or other pollutants to be discharged from the site, applicable regulations will have been violated. Similarly, the ability to deploy standby BMPs within 48 hours does not substitute for actual protection of slopes during storm events. Excessive erosion and sediment discharges are prohibited even if they result from a dry season storm that arrives with less than 48 hours notice.

5.4.2 Additional Controls for Construction Sites

For project sites that are tributary to 303(d) water body segments that are impaired for sediment, the following BMPs must be implemented at all times:

- Maintain vegetative cover as much as possible by developing the project in a phased approach to reduce the amount of exposed soil at any one time.
- Limit the areas of active construction to five acres at any one time, where applicable.
- Provide 100 percent soil cover for all areas of inactive construction throughout the entire time of construction, on a year-round basis.
- Provide appropriate perimeter control at all appropriate locations along the site perimeter and at all inlets to the storm drain system at all times during the rainy season.
- Provide vegetated buffer strips between the active construction area and any water bodies.
- Provide stabilized construction entrances and limit all vehicle and foot traffic to those entrances.

5.4.3 Maximum Disturbed Area for Erosion Controls

The active disturbed soil area of any project site shall be not more than 50 acres for an individual grading permit or a combination of grading permits under an associated Tentative or Final Map. The City may approve, on a case-by-case basis, expansions of the active disturbed soil area limit if adequate site protection is demonstrated. At all times, sufficient soil stabilization and sediment control materials shall be maintained on site to provide adequate site protection.

Disturbed soil areas shall be considered active whenever the soil disturbing activities have occurred, continues to occur or will occur during the ensuing 10 days. Non-active areas shall be protected within 10 days of cessation of soil disturbing activities or prior to the onset of precipitation, whichever occurs first.

5.4.4 Advanced Treatment Methods

Advanced Treatment is defined in Order R9-2007-0001 as the use “of mechanical or chemical means to flocculate and remove suspended sediment from runoff from construction sites prior to discharge.”

If a project meets all of the following criteria, advanced treatment will be required:

1. All or part of the site is within 200 feet of waters named on the CWA Section 303(d) list of Water Quality Limited Segments as impaired for sedimentation and/or turbidity;
2. The disturbance area is greater than five acres, including all phases of the development;
3. The disturbed slopes are steeper than 4:1 with at least 10 feet of relief, and drain toward a Section 303(d) listed receiving water for sedimentation or turbidity;
4. The site contains a predominance of soils with USDA-NRCS Erosion factors k_f greater than or equal to 0.4.

Advanced treatment may be required on sites that do not meet all four of the criteria for exceptional threat to water quality listed above at the discretion of the City Engineer based on a record on non-compliance.

Treatment effluent water quality shall meet or exceed the water quality objectives for sediment, turbidity, pH, and toxicity as listed in the Water Quality Control Plan for the San Diego Basin (9) for inland surface waters and lagoons and estuaries for the appropriate hydrologic unit.

Prior to obtaining a grading permit, the applicant shall submit, to the satisfaction of the City Engineer, the following:

1. An operations and maintenance schedule for all advanced treatment methods.
2. A monitoring plan for all required BMPs and water quality for all proposed work deemed necessary to achieve project water quality goals.
3. A written training plan for certification and documentation of necessary training and refreshers of staff.

The discharger shall either deploy Advanced Treatment Methods or comply with source control procedures described below.

- Maintain vegetative cover as much as possible by developing the project in a phased approach to reduce the amount of exposed soil at any one time.
- Limit the areas of active construction to five acres at any one time.
- Provide 100 percent soil cover for all areas of inactive construction throughout the entire time of construction, on a year-round basis.
- Provide appropriate perimeter control at all appropriate locations along the site perimeter and at all inlets to the storm drain system at all times during the rainy season.
- Provide vegetated buffer strips between the active construction area and any water bodies.
- Provide stabilized construction entrances and limit all vehicle and foot traffic to those entrances.

5.5 Program Implementation

5.5.1 Construction and Grading Approval Process

Because most construction activities involve soil disturbances and/or potential non-storm water discharges, the City's project approval process has been modified to require project proponents to incorporate stormwater protection and urban runoff management into their projects, prior to, during, and following, construction activities. The City utilizes the following elements when processing and approving projects for construction related activities.

5.5.1.1 Stormwater Pollution Prevention Plan

City staff will use the stormwater management plans and/or erosion control plans to evaluate compliance with the City's Stormwater and Grading Ordinances. This process, as described in the Stormwater Standards Manual, will also provide City staff with the information necessary to determine: (1) if the project is exempt, (2) if the project requires additional permit coverage (e.g. State General Construction Permit); (3) if the project is subject to the City's Standard Urban Stormwater Mitigation Plan (SUSMP) requirements, and; (4) the project's inspection frequency priority rating.

The process requires project proponents to do the following:

- Implement a plan to manage stormwater and non-stormwater discharges from the site at all times;
- Minimize grading during the wet season and coincide grading with seasonal dry weather periods to the extent feasible. If grading does occur during the wet season, require project proponent to implement additional BMPs for any rain events that may occur;
- Emphasize erosion prevention as the most important measure for keeping sediment onsite during construction;
- Utilize sediment controls as a supplement to erosion prevention for keeping sediment onsite during construction, and never as the single or primary method;
- Minimize areas that are cleared and graded to only the portion of the site that is necessary for construction;
- Minimize exposure time of disturbed soil areas;
- Temporarily stabilize and/or re-seed disturbed soil areas as rapidly as possible;
- Permanently re-vegetate or landscape as early as feasible;
- Stabilize all slopes; and
- When applicable, provide evidence of existing coverage under the State's General NPDES Permits for Construction Activities and Liner Underground/Overhead Utility Construction.

Project proponents obtain information from the City's public permit counter, which includes submittal requirements for grading permits, building permits, and other applicable discretionary and ministerial permit information. Additionally, construction project proponents can obtain a copy of the Stormwater Standards Manual (See Appendix 4-A), which contains the following:

- Minimum required BMP checklist and plan submittal requirements;
- Certificate of Exemption;

- SUSMP submittal requirements;
- References to the State General Construction Permit application and information and SWRCB website information;
- References to the State General Linear Utility Permit application and information and SWRCB website information;
- Construction Stormwater Pollution Prevention Plan (SWPPP) Template; and

Every construction activity within the City that has the potential to negatively affect water quality must prepare a construction storm water pollution prevention plan (Construction SWPPP). To maintain compliance with the various State and Regional permitting regulations, the City established a three tiered system for the preparation of a Construction SWPPP. The tiers range from most potential for storm water impacts (Tier 3) to the least potential for storm water impact (Tier 1) as described in more detail below.

Tier 3 - Construction activities that impact one or more acres (individually or cumulatively through phased construction) or that have a significant potential for water quality impairment must prepare a Tier 3 Construction SWPPP in conformance with the standards and the requirements of the Construction General Permit and City Standards.

Tier 2 - Construction activities that impact less than one acre and that pose a moderate threat to water quality must prepare a Tier 2 Construction SWPPP in conformance with City Standards and the General Linear Utility Permit (for underground/overhead linear utility projects).

Tier 1 - Construction activities that impact less than one acre and pose a low threat to storm water quality must prepare a Tier 1 Construction SWPPP in conformance with City Standards and the General Linear Utility Permit (for underground/overhead linear utility projects).

Construction activities that pose no threat to storm water quality do not require preparation of a Construction SWPPP; however, the construction activities must still comply with all construction BMPs required pursuant to Title 15 of the CMC and City Standards. See Section 5.5.1.2 below for more detailed discussion regarding exempt projects.

The criteria used to distinguish between high, moderate, low and no threat to storm water quality are more thoroughly described in the Project Threat Assessment Worksheet for Determination of Construction SWPPP Tier Level included as Appendix A to Section 3 (Construction SWPPP Standards and Requirements) of the City's Storm Water Standards Manual found in Appendix 4-A of this JURMP.

5.5.1.2 Exempt Projects

To qualify for an exclusion from preparation of a Construction SWPPP and other storm water program documentation requirements, project proponents are required to complete a certification of exemption prior to the issuance of any regulatory approval or permit. Approvals of exemptions are limited to only those projects where *all* activity, including

storage and handling of construction-related materials and any wastes or spills, will be completely enclosed (i.e. not exposed to stormwater) and no conduit to storm drains or surface waters exist (except for sanitary sewer system). Examples of types of activities that may be categorized as exempt include:

- Interior remodeling;
- Mechanical permit work;
- Electrical permit work;
- Tenant improvements (where all work and material storage occurs inside the building);
- Signs;
- Changes of use within an existing building;
- Temporary mobile home and trailer permits;
- Minor permits accessory to an existing building such as patio covers, decks and carports; and
- Emergency construction activities required for immediate protection of public health and safety.

These exemptions do not relieve the project proponents from preventing any construction-related materials, wastes, spills or residues from entering stormwater conveyance systems.

5.5.1.3 Projects Requiring Building Permit

For construction activities requiring a building permit, but which are not exempt, project applicants are required to implement the minimum BMPs. These requirements include site management, construction materials, and waste management controls, as well as off-site sediment tracking and transport. Because some activities with the potential to disturb soil (e.g. landscaping, grading less than permit threshold) may not require grading permits, minimum BMPs are still required to address basic erosion and sediment control practices.

5.5.1.4 Projects Not Subject to the State General Construction Permit

Similarly, for projects that require a grading permit and where the amount of soil being disturbed is less than one acre, project proponents are required to implement the City's minimum BMPs.

5.5.1.5 Projects Subject to the State General Construction Permit

For activities that will disturb greater than one acre of soil, project applicants are required to select and implement erosion control, sediment control and non-stormwater BMPs to prevent the discharge of contaminants off-site or to a stormwater conveyance system. In addition to meeting the City's minimum BMP requirements, the project proponent must provide evidence of coverage under the State General Construction Permit. The City has adopted the California Stormwater Quality association model Stormwater Pollution Prevention Plan (SWPPP) that may be completed and used to satisfy this requirement by the SWRCB. Dischargers may, upon approval of City staff, prepare the SWPPP using the Caltrans model. Upon submittal to the SWRCB, the project proponent must also submit a

copy of the Notice of Intent (NOI), proof of fee payment, and the completed SWPPP to the City for review and file.

5.5.1.6 Plan Checks

During plan checks, City staff will review the submittal to see if the minimum required BMPs are addressed and that the applicant-selected BMPs are reasonable and appropriate according to the construction activities planned for the site and in accordance with the Storm Water Standards Manual. The City staff will use a checklist for Tier 2 and 3 to verify that applicable requirements are included on plans. During this process, the plan check staff also serves as a resource for information to project applicants on applicability of BMPs.

5.5.2 Contract Specifications

The stormwater requirements for construction activities are applicable to all City Capital Improvement Projects as well. The following is standard provisions to be included in each contract for construction related activities.

WATER POLLUTION CONTROL

Add the following to Section 7-8.6:

The Contractor shall be informed regarding, and shall adhere to, the requirements of the California Regional Water Quality Control Board (RWQCB), and those of the local San Diego area district. All work shall be performed in accordance with RWQCB Order R9-2007-0001. The Contractor shall submit plans showing all pollution prevention, erosion and sediment control, site management practices, and a Storm Water Pollution Prevention Plan (SWPPP) when required by the RWQCB, to the Engineer for review and acceptance, and shall implement and maintain all appropriate measures to prevent polluted discharges from entering storm water conveyance facilities. The SWPPP must be prepared and submitted by the Contractor and accepted by the Engineer before the Notice to Proceed is issued.

The Contractor shall designate a qualified person who is trained and competent in the use of Best Management Practices (BMPs) and who shall be on the site daily, although not necessarily full time, to evaluate the conditions of the site with respect to storm water pollution prevention. This person shall ensure the implementation of the conditions of the SWPPP, the Contract Documents, and other State and local regulations and ordinances with respect to control of erosion, sediment and other forms of water pollution, as well as other waste management regulations. Further, this person shall be responsible for monitoring weather and implementation of any emergency plans as needed. The weather shall be monitored on a five-day forecast plan and a full BMP protection plan shall be activated when a 40% (5-day National Weather Service) chance of rain is forecasted. This person shall also be responsible for overseeing any site grading operations and evaluating the effectiveness of the BMPs. This person shall modify the BMPs as necessary to keep the site in compliance. This person or other

designated site management staff shall be responsible to inspect the BMPs routinely and ensure maintenance measures are implemented.

The Contractor shall educate all employees, subcontractors, and suppliers about storm water pollution prevention and mitigation measures needed during various construction activities to prevent the impact of construction discharges. The Contractor shall ensure that all personnel are trained in basic urban runoff management. A list of attendees and copies of the educational materials shall be kept on file at the site and submitted to the Engineer at the conclusion of each training session, upon request.

The Contractor shall protect with BMPs, such as gravel bags and filter fabric, all new and existing storm water conveyance system structures and other facilities from sedimentation or other related construction debris and discharges, or by any other equal product that is approved by the Engineer. The Contractor shall prevent any discharge of concrete rinse water or other pollutant into a stormwater conveyance facility with physical barriers.

The Contractor shall show in the SWPPP the locations for concrete washout, vehicle maintenance, staging, and storage areas. Further, the Contractor shall show pollutant control measures to be used (BMPs) to confine construction waste in these designated areas, including construction entrance stabilization and wheel-wash measures to reduce the tracking or deposition of sediment onto public and private roads.

During the dry season (May 1 through September 30 each year), the Contractor shall inspect at least monthly all pollutant control measures installed to mitigate construction activities during the dry season. For the duration of the project, the Contractor shall submit, with each progress payment request, documentation that these pollutant control measures were inspected, including detailed inspection reports.

During the rainy season (October 1 through April 30 each year), the Contractor shall inspect at least weekly all pollutant control measures, inspect before and after every rain event and every 24 hours during any prolonged rain event. For the duration of the project, the Contractor shall submit, with each progress payment request, documentation that these pollutant control measures were inspected, including detailed inspection reports.

The contractor shall perform routine maintenance of all pollution control measures continuously for the duration of the project. The Contractor shall implement special maintenance measures before and after every rain event and every 24 hours during any prolonged rain event. The Contractor shall maintain and repair all pollutant control measures as soon as possible after the conclusion of each rain event as worker safety allows. For the duration of the project, the Contractor shall submit, with each progress payment request, documentation that

these pollutant control measures were maintained, including detailed reports on daily routine work and special maintenance work that was performed, and a list of BMPs that were found to be inadequate and what modifications were made.

Monthly progress payments are conditioned upon the Owner having received from the Contractor the pollution control inspection and maintenance reports.

The Contractor shall mark with a stencil, concrete stamp, or ceramic tile every storm drain inlet within the project boundaries to indicate that no dumping is allowed in storm drainage facilities that discharge in the ocean. The stencil or tiles are available from the Engineer, with five days advance notice. On curb inlets, the stencil shall be placed at the curb line on the inlet roof, the stamp should be placed on the inlet roof or in the sidewalk behind the inlet, and the tile shall be affixed to the gutter with pavement-marker adhesive or inset in the concrete in the center of the inlet opening. On catch basins, the stencil, stamp, and tile shall be placed or imprinted next to the inlet grate. Extra concrete may be required next to the grate to accommodate the stencil, stamp, or tile dimensions.

If an unmitigated non-stormwater discharge leaves the project site, the Contractor shall immediately stop all the activity causing the discharge and mitigate the discharge. The Contractor shall also immediately notify the Engineer of the discharge. As soon as practical, any and all waste material, sediment, debris or other pollution from any discharge shall be removed from the drainage system by the Contractor.

DRAINAGE AND EROSION CONTROL

Add the following to Section 7-8.7:

Before commencement, and until final acceptance of the Work by the City, the Contractor shall provide all measures necessary to avoid erosion and adverse drainage conditions, in conformance with the requirements of the National Pollutant Discharge Elimination System (NPDES) Number CAS0108758 (RWQCB Order R9-2007-0001). Such measures shall prevent the impounding of runoff, nuisance water, sediment movement, and debris movement from the construction site onto adjacent properties or from adjacent properties onto the construction site. If the Engineer determines that the Contractor's measures are not adequate, the Contractor shall provide whatever additional measures are required.

Payment for all work necessary for preventing storm water pollution and providing drainage and erosion control, as specified, will be as shown in the Bid Schedule, and no additional compensation will be allowed.

5.5.3 BMP Implementation

In accordance with Order R9-2007-0001, the City established a set of minimum BMPs for all projects to be implemented year-round. Because all sites, regardless of the priority, must be protected to prevent discharges to the maximum extent practicable, the minimum BMP requirements are the same for each priority. Each site must be protected by an effective combination of erosion and sediment controls, materials and waste management controls, and site management controls. These minimum requirements are included in the Storm Water Standards Manual.

If particular BMPs are infeasible at any specific site, the project proponent must install other equivalent BMPs. At any time of the year, an inactive site must be fully protected from erosion and discharges of sediment. A site will be considered inactive if construction activities have ceased for a period of ten or more consecutive days. It is also the project proponent's responsibility at both active and inactive sites to implement a plan to address all potential non-stormwater discharges.

5.5.3.1 Dry Season Requirements

The following are the minimum BMPs that must be in place at all sites during the dry season, which is defined as May 1st through September 30th.

- All graded areas must have erosion protection BMPs properly installed.
- Adequate perimeter protection BMPs must be installed and maintained.
- Adequate sediment control BMPs must be installed and maintained.
- Adequate BMPs to control offsite sediment tracking must be installed and maintained.
- A minimum of 125% of the material needed to install standby BMPs to protect the exposed areas from erosion and prevent sediment discharges, must be stored onsite. Areas already protected from erosion using physical stabilization or established vegetation stabilization BMPs are not considered to be "exposed" for purposes of this requirement.
- The project proponent must have an approved "weather triggered" action plan and be able to deploy standby BMPs to completely protect the exposed portions of the site within 48 hours of a predicted storm event (a predicted storm event is defined as a forecasted, 40% chance of rain by 5-day National Weather Service). On request, the project proponent must provide proof of this capability that is acceptable to the City.
- Deployment of physical or vegetation erosion control BMPs must commence as soon as slopes are completed. The project proponent may not continue to rely on the ability to deploy standby BMP materials to prevent erosion of slopes that have been completed.
- The area that can be cleared, graded, and left exposed at one time is limited to the amount of acreage that the contractor can adequately protect prior to a predicted rainstorm. For larger sites grading should be phased. It may be necessary to deploy erosion and sediment control BMPs in areas that are not completed, but are not actively being worked before additional grading is done.

5.5.3.2 Rainy Season Requirements

In addition to the dry season requirements, the following must be implemented during the rainy season, which is defined as October 1st through April 30th:

- Perimeter protection and sediment control BMPs must be upgraded if necessary to provide sufficient protection for storms likely to occur during the rainy season.
- Adequate physical or vegetation erosion control BMPs must be installed and established for all completed slopes prior to the start of the rainy season. These BMPs must be maintained throughout the rainy season. If a selected BMP fails, it must be repaired and improved, or replaced with an acceptable alternate as soon as it is safe to do so. The failure of a BMP indicates it was not adequate for the circumstances in which it was used. Repairs or replacements must therefore put a more robust BMP in place.
- The amount of exposed soil allowed at one time shall not exceed that which can be adequately protected by deploying standby erosion control and sediment control BMPs prior to a predicted rainstorm.
- A disturbed area that is not completed but that is not being actively graded must be fully protected from erosion if left for 10 or more days. The ability to deploy standby BMP materials is not sufficient for these areas. BMPs must actually be deployed.

5.5.4 Inspection of Construction Sites

5.5.4.1 Inspection Frequencies

The inspection frequencies for determining compliance with the City's requirements are based upon the threat to water quality prioritization of sites which is described in Section 5.2.1 of this document.

At a minimum, each site that is determined to be high inspection frequency priority will be inspected at least every two weeks during the rainy season (October 1st through April 30th). Medium inspection frequency priority projects are to be inspected at least monthly during the rainy season. Low inspection frequency priority construction sites will be inspected on an as-needed basis during the rainy season. All construction sites will be inspected for stormwater management compliance on an as needed basis during the dry season. Site specific inspection frequencies will be reevaluated periodically, particularly when grading activities are being conducted during the rainy season. The need for additional inspections may vary depending upon several factors including:

- Site conditions;
- Previous violations;
- History of developer or contractor past performance;
- Grading during rainy season; and
- Weather patterns.

5.5.4.2 Inspection Procedures

The City currently inspects all ongoing construction projects including both private projects and City CIPs. A team of Engineering Inspectors are responsible for all grading, infrastructure, right-of-way and engineering projects, while a team of Building Inspectors are responsible for all building projects within the City. Inspectors are

responsible for ensuring construction activities are being performed in accordance with the project plans, building and grading permits, and all applicable codes, regulations and ordinances. Currently, if inspected sites do not meet the City's requirements or do not comply with City ordinances, City inspection staff immediately directs compliance and conducts follow-up inspections to assure compliance is attained. Enforcement procedures are used when necessary and may include verbal or written warnings, stop work orders, revocation of permits, and/or legal action.

In accordance with Order R9-2007-0001, the City's inspection procedures will continue to include the following:

- Assessment of BMP effectiveness including implementation of an effective combination of erosion, sediment and non-stormwater BMPs to meet the City's minimum water quality protection requirements and prevent the discharge of pollutants into stormwater and receiving waters, and
- Checking for coverage under the General Construction Permit (NOI and/or WDID No.) during initial inspection;
- Ensure compliance with the City's applicable ordinances, permits and other site-specific requirements;
- Visual observations for non-stormwater discharges, potential illicit connections and potential discharge of pollutants in stormwater runoff;
- Ensure proper implementation of plans and specifications,
- Education and outreach on stormwater pollution prevention as needed;
- Ensure that the project proponents implement their stormwater management on a year-round basis, and;
- Creation of a written or electronic inspection report.

The inspection program will be expanded to not only include City inspectors ongoing participation in project preconstruction meetings and regular site inspections, but also requiring the Developer/Contractor Self-Inspections consisting of implementation, maintenance, monitoring and revision of BMPs.

The primary mechanism inspectors use to determine if minimum water quality protection requirements and BMPs for construction activities are being met is to assess the site against the minimum BMP requirements that are designated by the City in the Storm Water Standards Manual. The minimum BMP requirements are intended to be easy to interpret field observations that allow an assessment of site conditions during both dry and wet conditions.

For projects subject to the State General Construction Permit, the RWQCB is responsible for verifying and enforcing requirements of the General Construction Permit. The City inspection staff will continue to work with RWQCB staff in assuring compliance at these sites.

5.5.5 Enforcement at Construction Sites

The following enforcement measures and remedies are available to the City for grading and construction related activities and may be undertaken in lieu of or in addition to any

remedial actions undertaken in accordance with Section 15.16.140 of the Carlsbad Municipal Code:

Stop Work Notice

The City may issue a stop work notice demanding that all unlawful activities be stopped until a valid grading permit is obtained or corrective action is authorized by the City. The City may allow continuance of the work to the extent necessary to install protective measures to safeguard the public or to secure the site against erosion, sedimentation and the discharge of non-storm water pollutants. Prior to resumption of any work, other than as may be permitted by the City on a permitted grading operation, the permittee shall restore all cash deposits and/or other securities consumed by the City to the amount specified in the approved grading and erosion control agreement.

Owner Notification

The owner of the property will be notified in writing that a violation has occurred. The notification will specify the location, nature and extent of the activity or condition which contributed to the violation, the corrective action needed to cure the violation and the period of time deemed necessary by the City to correct the violation.

Record Notice of Grading Violation

In the event that the owner does not correct the violation in the manner or within the time period requested by the City, the City will record a notice of grading violation against the property with the county recorder. Upon completion of any corrective action and/or issuance of a valid grading permit and upon payment of the investigation fee required, the City will file a notice of release of grading violation with the county recorder releasing the property from the notice of grading violation.

Prohibition of Development Permits

Any property which has a notice of grading violation recorded against it shall be prohibited from obtaining or using any development permit pursuant to Titles 18, 20 and 21 of the CMC until after all corrective actions are taken in accordance with the requirements of the city engineer and, a notice of release of grading violation has been recorded with the county recorder.

Investigation Fee

An investigation fee shall be paid by the person responsible for the violation in accordance with the provisions of Section 15.16 of the CMC. The payment of such investigation fee shall not relieve any person from the performance of the corrective work or otherwise complying with the requirements of this chapter.

Criminal Penalties

Each person, firm or corporation who commences or does any grading contrary to the provisions of this chapter, or otherwise violates the provisions of Section 15.16 of the CMC, is guilty of an infraction. Every day during any portion of which any violation of any provisions of this title is committed, continued or permitted by such person, firm or

corporation, will be deemed a separate violation and will be punishable as provided in the CMC.

Abatement of Public Nuisance

Any grading commenced or done contrary to the provisions of Section 15.16, or other violation of the CMC, shall be, and the same is declared to be, a public nuisance. Upon order of the City Council, the City Attorney will commence necessary proceedings for the abatement of any such public nuisance in the manner provided by law. Any failure, refusal, or neglect to obtain a permit as required by this chapter shall be prima facie evidence of the fact that a public nuisance has been committed in connection with any grading commenced or done contrary to the provisions of Section 15.16 of the CMC.

Civil Action

The City Attorney may, at the request of the City Engineer, initiate any appropriate civil action in a court of competent jurisdiction to enforce the stop work notice, including the required corrective actions, and/or the grading and erosion control agreement, including the recovery of any funds expended by the City to abate any public nuisance resulting from an unlawful act as defined in Section 15.16.170 of the CMC and any additional civil penalties provided for by law.

5.5.6 Reporting of Non-Compliant Sites

City staff will document observations of potential violations and will notify the RWQCB of the noncompliance in accordance with Order R9-2007-0001 if the noncompliance endangers health or the environmental. Additionally, the City will provide notification to the RWQCB when Stop Work enforcement or higher levels of enforcement actions are taken against violators.

6.0 MUNICIPAL COMPONENT

This section describes the responsibilities of staff with respect to implementation of the Municipal Component of the JURMP. This program section is intended to: (1) reduce municipal discharges of pollutants from the MS4 to the MEP, and; (2) prevent municipal discharges from the MS4 from causing or contributing to a violation of water quality standards.

The City of Carlsbad Municipal Facilities where Municipal staff work or provide a specific service are composed of:

- Administration buildings
- Recreational areas
- Buildings
- Maintenance yards
- Water reservoirs
- Water pump stations
- Sewer collection system and lift stations
- Road system
- Parking facilities
- Storm drain system
- Pressure regulator vaults
- Fire stations

6.1 Introduction

6.1.1 Chapter Organization

This chapter is organized to help City departments effectively implement the Best Management Practices (BMPs) that are specific to each of their departments. Each section addresses a City responsibility, which can be shared by multiple departments, or just one.

This chapter is separated into the major programs of the City's Municipal Operations. In general, each section includes the following:

1. A description of the program;
2. A description of the sources/activities within the program that have a potential impact on water quality;
3. A listing and/or description of the BMPs required to reduce or eliminate the potential pollutant discharges from the sources/activities, and;
4. A description of the implementation of the program and/or BMPs – i.e., processes that the individual City groups need to accomplish in order to implement the program.

6.2 Source Characterization

6.2.1 Inventory of Fixed Facilities and Field Activities

The City has two types of municipal operations: fixed facilities and field activities. Activities may take place at a fixed facility or in the field, potentially Citywide. Fixed facilities represent a physical location at which activities occur. Conversely, field activities are actions or functions that staff (or contractors) implements as a part of their work duties.

The municipal inventory includes all of the applicable fixed facilities and activities that may impact water quality. Where applicable the following information is provided for each fixed facility or activity:

- Name;
- Address (if applicable);
- Watershed;
- Description;
- Potential pollutants generated; and
- Determination as to whether the facility or activity is tributary to a 303(d) water body and generates pollutants for which the water body is impaired

Appendix 6-A includes an inventory of the City's fixed facilities and activities.

6.2.2 Potential Pollutants

The City has identified pollutants that have the potential to be generated at each of the site/sources on the municipal inventory. The potential pollutants are based on municipal pollutant generating activities for both fixed facilities and field activities. The municipal inventory, found in Appendix 6-A, identifies both the pollutant generating activities as well as the potential pollutants that may be generated at various municipal operations.

6.2.3 High Priority Facilities and Activities

Based on the criteria listed in the Permit, the City has identified the high priority facilities and activities from its inventory. High Priority facilities meet one or both of the criteria listed below:

- The facility or activity is identified as high priority in Section D.3.a.(7)(a).

6.3 BMP Implementation

6.3.1 Pollution Prevention

The City implements pollution prevention BMPs through its municipal operations. Departments and personnel are required to use appropriate pollution prevention methods as described in the Municipal BMP Guide located in Appendix 6-B. General Pollution Prevention BMPs that are applicable to all municipal personnel and operations include:

- Use of Safer Alternative Products
- Good Housekeeping Practices

6.3.2 Minimum BMPs

The City has designated a minimum set of BMPs for all municipal facilities and activities. Collectively, the BMPs are listed in the Municipal BMP Guide. In order to associate the BMPs with specific facilities or activities, the BMPs are grouped by pollutant generating activities.

6.3.3 Additional Controls

Regardless of where the activity occurs, the City categorically prohibits illegal discharges from municipal sites/sources. Aside from washing, cleaning, or other activities that may cause illegal discharges, municipal sites/sources have the potential to conduct activities that produce significant pollutant discharges. If in the future the City finds that even in the absence of illegal discharges the activities of municipal sites/sources are contributing pollutants of concern to a CWA section 303(d) impaired waterbody segments or are negatively impacting ESAs, additional controls will be required for those activities.

Further, if the City has reason to believe that municipal sites/sources are generating significant illegal discharges in a given area of the City that is tributary to a 303(d) listed waterbody (and the discharges contain pollutants causing the impairment) or is within, directly adjacent to, or directly discharges to a waterbody within an ESA, City staff may more regularly visit those areas and/or take other actions to address the illegal discharges.

6.4 Inspections of Municipal Areas and Activities

The high priority facilities and activities will be inspected on an annual basis. There are 4 primary purposes of the inspections:

- To ensure that BMPs are properly implemented and functioning effectively;
- To identify maintenance (e.g., material removal) and repair needs;
- To ensure proper implementation of SWPPPs if applicable; and
- To make sure that staff is aware of the storm water management requirements.

At a minimum, inspection documentation will include the following information: noting date, time, conditions and inspection date, and necessary corrective actions. The documentation may be kept on-site and made available for inspection, if requested.

When deficiencies in BMP implementation are determined during inspections, the inspector will document corrective actions required to bring the site/activity into compliance. The corrective actions will be given to appropriate staff with associated timeframes for correction. Once corrected, the inspection/corrective action documentation will be updated to demonstrate resolution.

6.5 General Contract Language

The City has standard contract specifications for Public Works Contracts. Vendors are required to implement BMPs and have applicable inspection protocol. For maintenance contracts that have the potential for non-storm water discharges (i.e., pressure washing, window cleaning, etc.) the City inserts a contract clause requiring the vendor to utilize BMPs.

The General Services Department employs an inspection staff consisting of two Public Works Inspectors and one Public Works Superintendent. Staff attends seminars, reads industry publications, and participates in tailgate meetings regarding storm water compliance practices and regulations. Inspectors perform regular inspections of project sites to insure contractor/vendor compliance with contract documents, SWPPPs (where applicable), and BMPs. The General Services' construction or maintenance sites/projects are relatively small in area and rarely exceed 1 acre. Inspection staff are authorized to take any action required to insure compliance including stopping ongoing work, calling in alternative vendors to provide BMPs and directing contractors to install necessary BMPs on a time and materials basis when appropriate. Vendors that do not comply with their contract have monies due withheld and/or can be back-charged for corrective actions taken at the City's expense. The following is the Standard Public Works Contract Boilerplate language that is included in all appropriate contracts:

7-8.6 Water Pollution Control. The Contractor shall exercise every reasonable precaution to protect channels, storm drains, and bodies of water from pollution. It shall conduct and schedule operations so as to minimize or avoid muddying and silting of said channels, drains, and waters. Water pollution control work shall consist of constructing those facilities which may be required to provide prevention, control, and abatement of water pollution.

The Contractor shall comply with the California State Water Resources Control Board (SWRCB) Order Number 99-08-DWQ, National Pollutant Discharge Elimination System (NPDES) General Permit Number CAS000002, Waste Discharge Requirements (WDR's) for Discharges of Stormwater Runoff associated with Construction Activity (General Permit) and subsequent adopted modifications and with all requirements of the Storm Water Pollution Prevention and Monitoring Plans for this project in accordance with these regulations.

When a construction SWPPP is required, the following language is also included in the contract:

A model Storm Water Pollution Prevention Plan (SWPPP) is provided to the Contractor, in Appendix #, for use in preparing the Project SWPPP for approval by the City. The Contractor shall be responsible for the preparation and implementation of the SWPPP and coordination with the City and the Regional Water Quality Control Board. All costs for preparing and implementing the Storm Water Pollution Prevention and Monitoring Plans and coordination with the City and the Regional Water Quality Control Board shall be included as part of the contract price bid.

Maintenance/Service Contract Boilerplate:

BEST MANAGEMENT PRACTICES

Contractor will incorporate and comply with all applicable Best Management Practices (BMP's) during the completion of this agreement. All work must be in compliance with the San Diego Regional Water Quality Control Board (RWQCB) permit, Carlsbad Municipal Code and the City of Carlsbad Jurisdictional Urban Runoff Management Plan (JURMP) incorporated herein by reference.

The Contractor shall indicate in his proposal methods of compliance, equipment utilized to insure compliance, training of staff and experience in compliance with environmental regulations.

6.6 Municipal Separate Storm Sewer System (MS4) Program

The City's Public Works Department is responsible for the routine and emergency maintenance of the City's MS4. The City storm drain maintenance crews (and/or contractors) inspect and clean the following types of MS4 facilities: catch basins, curb inlets, under sidewalk drains, channels, and desiltation basins.

The City will implement the following schedule for inspection and cleaning of the MS4:

- Once a year, the City will inspect all MS4 facilities that receive or collect high volumes of trash and debris between May 1 and September 30 of each year. All remaining MS4 facilities will be inspected at any time during the year.
- Any catch basin or storm drain inlet that has accumulated trash and debris greater than 33% of design capacity (holding area) will be cleaned in a timely manner. Any MS4 facility that is designed to be self cleaning will be cleaned of any accumulated trash and debris immediately. Open channels shall be cleaned of observed anthropogenic litter in a timely manner.

When practical, work is to be done when conditions are dry. The crews vacuum water runoff and/or remove any silt build up from activity. Acceptable vacuums; e.g. Wet/dry shop vacuum or large hydro-flusher vacuum machine are used for the operations. Sediment control BMPs will be implemented to prevent materials from discharging downstream of the site of cleaning activities.

During rain events the City's "Storm Patrol" staff clear debris from inlets, grates, pipe openings and road shoulders; provide emergency erosion/sediment control (e.g. sandbags); survey City streets for damage due to rain and/or flooding; and monitor drainage throughout the City.

6.6.1 Evaluation of Existing Flood Control Devices

The City's inventory of existing flood control devices has been reviewed, updated and incorporated in the City's GIS system. If additional pollutant removal from urban runoff is possible and feasible, permanent pollutant removal measures will be incorporated in future retrofit projects.

6.7 Street Sweeping Program

Street sweeping is widely recognized as an effective BMP for reducing the amount of pollutants (litter, green waste, oils and grease and sediment) on street and parking lot surfaces that may impact storm water. The City currently contracts out its street sweeping services. Streets are swept on a revolving schedule for which City streets are swept at a rate of approximately 1,200 miles every month.

The City has developed a minimum frequency for street sweeping based on the requirements of the Permit. Based on historic sweeping volumes collected and traffic loadings, the street network was stratified into high, moderate, and low volume generating areas. For the purposes of the street sweeping program, the terms high, moderate, and low are used only to classify the streets with relation to each other, NOT to qualify the streets as generating significant or non-significant amounts of trash and debris.

At a minimum, the following street sweeping frequencies will be adhered to for the identified curbed and gutter streets and parking facilities within the City:

- High Volume of trash/debris– Minimum of twice per month for Arterials

- Moderate Volume of trash/debris – Minimum of monthly for Collectors and residential streets
- Low Volume of trash/debris – Minimum of once per year for Parking Lots and Alleys

6.8 Pesticide, Herbicide, and Fertilizer Management

The Federal Pesticide, Fungicide, and Rodenticide Act and California Title 3, Division 6, Pesticides and Pest Control Operations place strict controls over pesticide application and handling and specify training, annual refresher, and testing requirements. The regulations cover a list of approved pesticides and selected uses, updated regularly; general application information; equipment use and maintenance procedures; and record keeping. The California Department of Pesticide Regulations and the County Agricultural Commission coordinate and maintain the licensing and certification programs. These certifications require the implementation of Integrated Pest Management (IPM) practices during maintenance activities. All City staff who apply pesticides and herbicides in “agricultural use” areas such as parks, golf courses, rights-of-way and recreation areas are certified in accordance with state regulations. All certifications are kept on file at the City’s Parks Department. Contracts for landscape maintenance include similar requirements.

All employees that handle or apply pesticides are trained on and responsible for understanding and implementing safety precautions in current Materials Safety Data Sheet (MSDS). City staff implements BMPs for: IPM practices including; minimizing use; caution when handling any hazardous product; reading and following use instructions, completely using the product prior to marking as waste, and hazardous waste storage and proper disposal.

BMPs for pesticide, herbicide and fertilizer management are applied at all municipal facilities, public rights-of-ways, parks, recreational facilities, and other landscaped areas. All BMPs for pesticide, herbicide, and fertilizer management are located in the Municipal BMP Guide included as Appendix 6-B.

6.9 Wastewater Element

6.9.1 Background

The City provides wastewater collection, transmission and some treatment for its residential, commercial, and industrial users. The average daily wastewater flow for the City is approximately 7.3 million gallons per day (mgd).

6.9.2 Source Characterization

In general, the wastewater system is an underground utility system that is a conveyance system for polluted waters. The system includes a network of approximately 265 miles of pipeline which range in size from 6-inch to 42-inch in diameter and approximately 6,300 manholes. The system also includes 14 pump stations, a water reclamation facility (operated under a separate permit by Encina Wastewater Authority), several metering stations; and ultimately conveys wastewater (along with other jurisdictions' wastewater) to the 35 mgd Encina Wastewater Treatment Plant located in Carlsbad.

6.9.3 Best Management Practice Requirements

Prevention or response based BMPs will be implemented to reduce or eliminate the potential for wastewater system failures, infiltration, or emergencies. The complete list of BMPs can be found in Municipal BMP Guide in Appendix 6-B. The following is a summary of the prevention and response efforts that will be implemented for the wastewater operations.

Sewer System Overflow Response

The Maintenance and Operations (M&O) Division conducts Sewer System Overflow Response under varying emergency conditions. The primary function of the responses is to prevent human and environmental impacts from sanitary sewer spills. The Sewer System Overflow Response Plan (SSORP) details all of the procedures that are implemented during any type of sanitary sewer overflow and includes procedures for response, clean-up and reporting.

System Cleaning

A primary function of the Wastewater Division is to perform sanitary sewer collection system cleaning. As a part of the cleaning efforts, the division uses jet-rodding equipment and vactor trucks to collect the cleanings.

Video Inspection

Another primary function of the Wastewater Division is to perform video inspections of the sanitary sewer collection systems to identify potential problems and to prioritize the City's maintenance and rehabilitation program. These video inspections are currently performed on an as-needed basis. The City will be starting a comprehensive system-wide video inspection program in Fiscal Year 2008-09.

Utility Crew Work

Another primary function of the Wastewater Division is to perform general utility work, including maintenance and modifications to sanitary sewer manholes, and point repairs in the sanitary sewer collection system.

6.10 Special Events

6.10.1 Background

Periodically the City is host to special events, both directly as City functions, and indirectly, permitted to special event organizers. Examples of these special events are:

- Street Festivals

- Marathons
- Taste of Carlsbad
- Art Splash

6.10.2 Source Characterization

Typically, special events have a high density use of people per square foot raising the potential for pollutant generation. The pollutant generating activities and their potential pollutant types at special events typically include:

- Setup and teardown of equipment booths– illicit discharges and trash generation
- Booth operation – trash generation
- Food/drink preparation and consumption – illicit discharges, trash generation, and organic materials
- Hydraulic rides – oil and grease
- Temporary Portable Restrooms – chemicals and bacteria
- Hydration stations – water cups and other trash items

6.10.3 Best Management Practices

The following standard Best Management Practices represent the minimum requirements for a variety of special events that could take place in the City. The City may improve or modify these BMPs at any time if it is determined to provide equal or greater protection.

It is imperative that Event Organizers train event staff in storm water pollution prevention activities at the event venue and to notify all vendors of their storm water pollution prevention responsibilities.

All Event Organizers shall select an effective combination of Storm Water Best Management Practices (BMPs) to prevent trash or other pollutants from entering the storm drain system – BMPs to select from include:

Food and beverage, and all chemical and liquid activities or products:

Event Hosts/Organizers and vendors must have spill kits in or adjacent to their work area. Spill kits include: paper towels, cloth towels, kitty litter and/or sand. All spill materials must be picked up out of the public right of way once the spilled material is absorbed off the ground. Spills leaving the event venue area into the surrounding streets must be captured and prevented from entering the surrounding non-event area(s) and storm drains.

Storm Drain Protection:

- Event Hosts/Organizers must protect all storm drains identified on their site plans, and provide drain signage at each inlet that discourages storm drain pollution.
- In all weather conditions- place signage at, over (i.e. via a traffic barricade), or adjacent to the storm drains with the following wording:
 - “Do not pour liquids or place trash into the storm drain. Violators will be subject to fines/ No tire líquidos ni basura en los desagües. Violadores serán multados”
- Dry: if no rain is projected, consider placing fabric filters or approved inlet protection device over the drain opening. The use of fabrics and other types of

inlet protection devices will require gravel bags or other form of anchor to keep them in place during the event. The gravel bags must be clean and free of sediment.

- Rain: If a 40% (5-day National Weather Service) chance or greater of rain is forecasted, gravel bags protecting the storm drain perimeter or other approved inlet protection devices are sufficient. Do not use fabric filters in the event of rain.
- All impacted catch basins identified on the special events storm water pollution prevention plan must be visually inspected and cleaned, if necessary, following the special event and prior to an anticipated rain event (40% from 5-day National Weather Service).

Craft/Art Creative Areas and Post Event Public Art Removal:

- All craft/art creative areas must have spill kits on hand (see above).
- Post event clean-up of these areas includes removal of temporary public art (chalk, paint, charcoal, clay, etc). Event/vendor staff must use wet-mops. Any water in a bucket must be either poured into the sanitary sewer via for example a sink, or released over a landscaped area that has adequate capacity to contain the liquids and the pollutant without allowing discharge onto sidewalks, curbs, gutters streets and storm drains.

Trash and Debris:

- Adequate trash and recycling containers must be provided throughout the event venue, including at the exit and entry points. All trash containers must be covered. Regular collection of loose trash and debris is required.
- All trash and /or recycling collection areas must have spill kits and wet mop(s) and brooms available and staff trained in spill clean-up methods.
- Temporary Fencing will be required to be put into place if the event, or any portion thereof, is determined to pose a threat of wind blown debris into any water bodies.
- Post event sweeping of the entire venue area and related staging areas is required.

Temporary portable restrooms:

- All temporary portable restrooms will be placed away from all storm drain inlets, drainage swales, water bodies, and any other locations that have the potential to impact the storm drain system.
- All temporary portable restrooms are required to have a secondary containment pan or additional BMPs in place around the stations for possible overflows.
- The contact information for the company responsible for the restrooms clearly marked on or around the restrooms.

6.10.4 Program Implementation

Event Organizers must complete a permit application which includes developing a site plan that shows the limits of the special event and identifies all of the drain inlets (and other entry ways to the storm drain system). This application will be reviewed and approved by the City prior to permit issuance.

Site conditions and post-event conditions will be inspected by City staff. In the event that the Special Event organizer fails to adequately clean the venue, the City will clean the site and seek retribution for costs through enforcement actions.

6.11 Enforcement

The enforcement actions for municipal activities are similar to the City's general enforcement as described in Section 2.

7.0 INDUSTRIAL AND COMMERCIAL COMPONENT

7.1 Introduction

This section describes the responsibilities of the City with respect to implementation of the Industrial and Commercial Component of the JURMP. This program is intended to: (1) reduce industrial and commercial discharges of pollutants from the MS4 to the MEP, and; (2) prevent municipal discharges from the MS4 from causing or contributing to a violation of water quality standards.

7.2 Stationary Sources Element

7.2.1 Background

Storm water inspectors identify pollution sources, assess the potential threat to water quality, and require BMP implementation to eliminate pollution sources from commercial businesses. Major industrial types in Carlsbad include high technology, multimedia and biomedical businesses, electronics, golf apparel and equipment manufacturers and several light industry parks. Stationary commercial types in Carlsbad are restaurants, automobile maintenance, gas stations, golf courses, and resorts. These high priority industrial and commercial sites and their activities have the potential to generate significant amounts of pollutants, if performed with disregard to the environment.

7.2.2 Source Characterization

Each year hundreds of new businesses are established in Carlsbad. The Storm Water Protection Program works closely with the Finance Department to obtain information about new businesses, including activities, SIC codes and descriptions, business types, and contact names and numbers. Each quarter the Storm Water Protection Program will download, sort, map, and prioritize new businesses by SIC and business type.

These new businesses are screened, evaluated, prioritized, and then added to the inventory list and scheduled for inspection. In some cases information provided on business license applications is not correct and a pre-inspection evaluation was necessary. Pre-inspection evaluations helped determine if a business' activities were subject to storm water requirements. Two types of pre-inspection source evaluations were used:

1. Reviews: During the review process, the inspector will evaluate the source and activity using relevant information from other City departments, databases, or licensing programs to determine whether the site/source should be inspected and tracked by the Storm Water Protection Program. A business could be excluded during the review process if it was found that their activities are not regulated by the City or General Permit. The most common reason businesses were excluded was because of an incorrect SIC code designation or low threat to water quality.
2. Telephone Contacts: If the review fails to provide enough information, the inspector will contact the business by phone to determine their status and schedule an inspection if necessary.

After physical inspections, reviews, or telephone contacts, any changes to a business' priority or status will be recorded on the Storm Water Inventory List and/or in the Permits Plus database. New businesses are also found by referral from other agencies, field discovery, or business directories.

The City's Commercial/Industrial inventory is located in Appendix 7-A.

As required by the permit, the following applicable stationary sites/sources are included in the inventory:

1. Commercial Sites/Sources:

- Automobile repair, maintenance, fueling, or cleaning;
- Airplane repair, maintenance, fueling, or cleaning;
- Boat repair, maintenance, fueling, or cleaning;
- Equipment repair, maintenance, fueling, or cleaning;
- Automobile and other vehicle body repair or painting;
- Automobile (or other vehicle) parking lots and storage facilities;
- Retail or wholesale fueling;
- Pest control services;
- Eating or drinking establishments, including food markets;
- Cement mixing or cutting;
- Masonry;
- Painting and coating;
- Botanical or zoological gardens and exhibits;
- Landscaping;
- Nurseries and greenhouses;
- Golf courses, parks and other recreational areas/facilities;
- Cemeteries;
- Marinas;
- Portable sanitary services;
- Building material retailers and storage;
- Animal facilities

2. Industrial Sites/Sources:

- Industrial Facilities, as defined at 40 CFR § 122.26(b)(14), including those subject to the General Industrial Permit or other individual NPDES permit;
- Operating and closed landfills;
- Facilities subject to SARA Title III; and
- Hazardous waste treatment, disposal, storage and recovery facilities.

3. All other commercial or industrial sites/sources tributary to a CWA Section 303(d) impaired water body segment, where the site/source generates pollutants for which the water body segment is impaired. All other commercial or industrial sites/sources within or directly adjacent to or discharging directly to coastal lagoons or other receiving waters within environmentally sensitive areas (as defined in Attachment C of this Order).

4. All other commercial or industrial sites/sources that the Copermittee determines may contribute a significant pollutant load to the MS4.

Potential threats to water quality at each commercial and industrial site/source will be determined by evaluating a variety of site-specific factors including the criteria outlined in the Permit. Commercial and industrial facilities will be reviewed during the first year of implementation and prioritizations will be reviewed and updated annually in conjunction with the watershed-based inventory to reflect any changes in industrial and commercial uses. Individual prioritization criteria are described below in further detail:

Prioritization Criteria: Prioritization involves two steps: (1) initially classifying a facility as being a high threat to water quality based on site information; and (2) subsequently confirming or reclassifying the facility based on field observations and additional information. Initial classification of sites/sources will be accomplished administratively using the data provided in the existing industrial and commercial inventory. The confirmation and/or reclassification, when necessary, will be completed following the initial inspection of each site/source. In addition of the minimum criteria listed above, the City will also consider the following site/source attributes to evaluate the potential threat to water quality:

- i. Type of activity (SIC code): Standard Industrial Classification (SIC) codes will be used primarily to prioritize and identify specific commercial and industrial activities/sites that have the potential to contribute to storm water pollution. In addition, the NPDES General Industrial Permit (General Permit) defines specific SIC codes such that (1) coverage under the General Permit is mandatory (as defined in Categories ii, iii, vi, and viii of the General Industrial Permit) or (2) coverage under the General Permit is conditional, required only if material, machinery, or products are exposed to storm water (as defined in Category 10 of the General Permit). Industries not listed with an SIC code will be directly contacted and assigned an appropriate code based on a description of business activities.
- ii. Materials used at the facility: Materials, including hazardous materials, used at industrial and commercial sites have the potential to contribute significant pollutant loads to receiving waters if transported by storm water. A listing of all industrial and commercial facilities using or storing hazardous materials within the City has been obtained from the County of San Diego.
- iii. Wastes generated: If not properly disposed of, industrial and commercial wastes have the potential to degrade receiving waters when transported by storm water. A listing of all facilities generating industrial wastes within the City was obtained from the County of San Diego. Industrial Waste Permits issued by Encina Wastewater Authority will also be examined.
- iv. Pollutant discharge potential: When evaluating a commercial or industrial site/source's potential to discharge pollutants, the inspector will take into account all material handling equipment or activities, raw materials, intermediate products, final products, waste material, by-products, or industrial machinery exposed to storm water. Discharge potential will be assessed during site inspections at each facility.
- v. Non-storm water discharges: Authorized non-storm water discharges can contribute to water quality degradation by transporting pollutants into receiving

waters. Non-storm water discharges will be evaluated to determine whether they are a significant source of pollutants and whether the discharges may continue to be exempted from the prohibitions of Section B.1 of the Permit.

- vi. Size of facility: Size of the facility affects the amount of runoff and pollutant loads generated from the industry. The size of a facility will be taken into consideration during the threat evaluation process.
- vii. Proximity to receiving water bodies: The potential for pollutant transport to sensitive receiving water bodies is evaluated by determining the proximity and sensitivity of receiving water bodies using the ESA definitions from the Permit.
- viii. Sensitivity of receiving water bodies: All facilities directly discharging to or within 200 feet of the ESA's listed above were considered high priority.
- ix. Whether the facility is subject to the General Industrial Permit or an individual NPDES permit: A listing of facilities located in Carlsbad that have filed a Notice of Intent (NOI) and are covered under the General Permit are classified as high priority threats to water quality.
- x. Whether the facility has filed a No Exposure Certification/Notice of Non-Applicability: Those facilities that were identified as "Conditional" (NONA and NEC filers) were evaluated using the "prioritization flowchart" and prioritized accordingly.
- xi. Facility design: The design of a facility, including whether structural BMPs has been installed and maintained, or there are outdoor activities, will be considered during the threat to water quality evaluation process.
- xii. Total area of the site, area of the site where industrial or commercial activities occur, and area of the site exposed to rainfall and runoff.
- xiii. The facility's compliance history: Inspectors will review the compliance history of each commercial and industrial site and consider any relevant enforcement actions in determine the threat potential on activities conducted onsite.
- xiv. Any other relevant factors: The City reserves the authority to consider any other relevant factors specific to the facility to utilize in the prioritization process.

7.2.3 Best Management Practice Requirements

7.2.3.1 BMP Requirements

The minimum BMPs required to be implemented by all commercial and industrial businesses are described below:

There are four key components to a pollution prevention program and a fifth component added for storm water. Reviewing the following five "Rs" will assist in identifying the pollution prevention opportunities for Industrial Facilities. The definitions of these terms are as follows:

- Reduce – BEFORE generating a waste stream, minimize the quantity or toxicity of the waste by substituting nontoxic chemicals.
- Reuse – Material, unwanted in one area, may be used for its intended purpose in another area.
- Recycle – Reprocess used materials and produce a new or useful product.

- Rebuy – Purchase a product that contains recycled-content materials.
- Redirect – Divert the flow of storm water to reduce or eliminate contact with potential pollution. Direct storm water away from contact with known pollutants.

Pollution prevention eliminates or reduces the management of polluted storm water runoff. Industrial facilities often handle a variety of pollutants, both indoors and outdoors, that pose potential environmental threats if transported by way of urban runoff. Although the primary goal of pollution prevention is to protect human and environmental health, if properly implemented, pollution prevention can also support production by decreasing labor time associated with excess pollutant waste handling, thereby re-directing labor time more efficiently to production. Specific pollution prevention procedures may vary from one industrial facility to another, and the City will inform industries of pollution prevention opportunities during site inspections or through workshops aimed at common industry groups, where feasible. However, the following pollution prevention principles apply to most industries:

- Affirmative Procurement – Use alternative, safer, or recycled products.
- Redirect storm water flows away from areas of concern.
- Reduce use of water or use dry methods.
- Reduce storm water flow across facility site.
- Recycle and reuse waste products and waste flows.
- Move or cover potential pollution from storm water contact.
- Provide on-going employee training in pollution prevention.

BMPs are schedules of activities, prohibitions of practices, maintenance procedures, and other management practices to prevent or reduce the pollution of waters of the United States. In general, BMPs can be categorized as non-structural and structural. Non-structural BMPs consist of procedures and practices that prevent industrial pollutants from entering storm water. Because of their low cost and simplicity, non-structural BMPs should be considered first in the development of a facility's BMP program. Described below are minimum BMPs required to be implemented by stationary commercial and industrial facilities, as applicable:

1. Good housekeeping

Good housekeeping practices are designed to maintain a clean and orderly work environment. An orderly work environment may reduce the possibility of accidental spills caused by mishandling of chemicals or equipment and may reduce safety hazards to facility personnel. A clean work environment minimizes the discharge of pollutants into the storm water system. Specifically stationary facilities are required to:

- Protect materials and products that could potentially pollute storm water from rain, run-on, runoff, and wind dispersal by storing them indoors or covering them, and providing them with secondary containment as needed. For industries with conditional SIC codes, moving stored materials indoors may allow an exemption from the General Permit requirements.

- Use dry clean up methods (mops, brooms, rags or wire brushes to clean pavement, buildings and equipment as much as possible) instead of using water hose or pressure washing system to conduct washing or cleaning activities.
- Sweep up around dumpsters and other areas to prevent trash and debris from accumulating. Dumpsters must be kept closed when not in use. All trash must be kept in appropriate sized containers until it can be hauled away. When inspecting solid waste collection areas, inspectors will note if recyclable materials (cardboard, green waste, etc.) are placed in dumpsters.

2. Preventive maintenance

Preventive maintenance includes the regular inspection and maintenance of storm water structures (drains, catch basins, etc.) as well as other facility equipment and systems. Structures should be maintained in good working order and cleaned as needed to prevent discharge of pollutants into the storm water system. Facility equipment or systems should be properly maintained to prevent leaks or discharges of pollutants into the storm water system.

3. Material Storage and Handling

This includes all procedures to minimize exposure of significant materials to storm water and to minimize the potential for spills and leaks from storage, loading, unloading and transfer of materials.

4. Employee training

Appropriate personnel should be trained in good housekeeping, preventive maintenance, materials storage and handling, solid waste handling and recycling, and spill response as applicable to the facility. Records should be retained of employees attending storm water training sessions and the topics covered.

5. Solid waste (non-hazardous) handling and recycling

This includes the procedures or processes to handle, store, or dispose of waste or recyclable materials. Waste disposal areas should be kept free of litter and debris and waste and recyclable receptacles must have a cover or lid to prevent the contents from being dispersed by the wind or coming in contact with storm water.

6. Spill response

Spills and leaks can be a major contributor to storm water pollution. Facilities should identify potential locations and quantities of significant materials that may spill or leak, and should write and implement a response plan addressing spill containment, clean up and notification procedures. Appropriate spill clean-up equipment should be readily accessible to trained spill response personnel.

7. Record keeping

This includes the procedures to ensure that all records of inspections, spills, maintenance activities, corrective actions, visual observations, etc., are developed, retained, and provided, as necessary, to the appropriate facility personnel. Record keeping and internal reporting represent good operating practices as they increase the efficiency of the facility and the effectiveness of BMPs.

8. Self inspection/quality assurance

This includes, in addition to the preventative maintenance inspections identified above, an inspection schedule of all potential pollutant sources. Tracking and follow-up procedures should be described to ensure adequate corrective actions are taken. Quality assurance includes the procedures to ensure that all elements of any required SWPPPs or monitoring plans are adequately conducted.

7.2.3.2 Additional Controls for Stationary Commercial Sites / Sources

All high priority industries will be required to develop and implement a Storm Water Pollution Prevention Plan (SWPPP) as required by the General Industrial Permit of the Carlsbad Municipal Code. In addition, some high priority commercial stationary facilities will also be required to develop and implement SWPPPs if their activities have the potential to contribute to storm water pollution. These businesses will be given 60-90 days to develop and submit the SWPPP to the Storm Water Protection Program for review and approval. During follow up compliance inspections, businesses will be required to show documentation that the SWPPPs had been implemented as required. If the inspector found deficiencies, the facility operator will be required to revise the SWPPP and ensure compliance procedures and BMPs were implemented as outlined in the plan.

Since 1995, the City has required new industrial and commercial developments to implement structural BMPs for storm water runoff (e.g., drainage inlet filters/screens, sedimentation basins). During inspections, the City will observe and review the current BMPs and will recommend or require additional BMPs as appropriate to mitigate any potential or actual sources of pollution generated from the facility. Inspections of existing structural BMPs will verify installation of the planned BMPs, maintenance and operation. Since these BMPs are site specific, the determination or recommendation for specific BMPs will be made after inspections. When specific BMPs need to be designated, the City will refer to existing sources of published BMPs, including: the California Storm Water Best Management Handbooks (1993); County of San Diego Guidance Documents; CALTRANS, etc.

Structural BMPs consist of specialized equipment, structural components, or engineered technologies that can be used when non-structural BMPs are ineffective. Because structural BMPs are site specific, the facility operator needs to evaluate each proposed use. Proper installation and regular maintenance of structural BMPs are imperative to their effectiveness. Examples are as follows:

Overhead Coverage

This includes structures that provide horizontal coverage of materials, chemicals, and pollutant sources from contact with storm water.

Retention Ponds

This includes basins, ponds, surface impoundments, bermed areas, etc., that do not allow storm water to discharge from the facility.

Control Devices

This includes berms or other devices that channel or route run-on and runoff away from pollutant sources.

Secondary Containment Structures

This generally includes containment structures around storage tanks and other areas for the purpose of collecting any leaks or spills.

Treatment

This includes inlet controls, infiltration devices, oil-water separators, detention ponds, vegetative swales, etc., that reduce the pollutants in storm water discharges.

7.2.4 Program Implementation

7.2.4.1 Inspections

The City will conduct inspections to verify BMP implementation, Permit compliance, and municipal code compliance. Each month, several businesses will be selected from the inventory list for inspection and/or review. If a new business is not excluded by review or telephone survey, then a site visit will be scheduled and a comprehensive inspection conducted. The City will conduct scheduled, unscheduled, follow-up, and compliance inspections at commercial and industrial sites/sources at the frequencies as required by the Permit. During site visits, the inspector will:

- a. Review of the SWPPP or BMP implementation plans, if the site uses or is required to use such a plan;
- b. Review of facility monitoring data, if the site monitors its runoff
- c. Check for coverage under the General Industrial Permit (Notice of Intent (NOI) and/or Waste Discharge Identification No.), if applicable;
- d. Assess compliance with ordinances and permits related to urban runoff;
- e. Assess BMP implementation, maintenance and effectiveness;
- f. Conduct visual observations for non-storm water discharges, potential illicit connections, and potential discharge of pollutants in storm water runoff; and
- g. Evaluate education and training on storm water pollution prevention, as conditions warrant.

The results will be compiled into an inspection report that includes observations made during the site visit, noted violations, and corrective actions needed to comply, if applicable. The inspection report will be left onsite and prompt compliance is expected.

When the responsible party is not available to sign and/or receive the inspection report, it will be mailed with a cover letter including a date to comply with the corrective actions. Copies of inspection reports and letters for high priority sites/sources will be maintained by the Storm Water Protection Program.

7.2.4.2 Inspection Frequency

High Threat to Water Quality – At a minimum, 50% of all sites (excluding mobile sources) determined to pose a high threat to water quality will be inspected in the first year of implementation of the JURMP. The inspection frequency will increase to 100% of the commercial and industrial sites in the second year, and will remain at 100% annually thereafter. Per Order R9-2007-0001, if the RWQCB inspects an industrial site within the City, it satisfies the City’s requirement to perform an inspection during that reporting period.

Overall Inventory – At least 20% of all inventoried stationary businesses will be inspected in the first year of program implementation. In subsequent years at least 25% of the inventoried stationary businesses will be inspected. In general, each year all high TTWQ sites will be selected for inspection, and then other, lower priority businesses will be selected based largely on their potential to contribute pollutants of concern for local receiving waterbodies and resource availability. If high TTWQ stationary sites comprise more than 25% of the inventory in a given year, the City will still inspect all high priority sites. Note that mobile businesses are not included when determining the inspection requirements based on percentages of the inventory. The City will track its inspections during each reporting period to ensure that it meets the minimum inspection frequencies required by the Order. More specific detail about the sites selected for inspection in 2007-2008 is provided later in this subsection.

The City will also continue to investigate all reported incidents of illegal discharges from industrial or commercial site/sources, including those arising from the results of the Dry Weather Monitoring Program. Investigations are performed according to the procedures described above.

As required by the Permit, the City has identified the businesses it plans to inspect within the first year of program implementation. The City’s present industrial and commercial inventory includes 595 stationary facilities, of which 559 are identified as high TTWQ and 36 are classified as non-high TTWQ. Therefore, twenty percent of the required stationary facility inventory to be inspected during the first year of implementation is 112 sites, and 50 percent of the high TTWQ inventory would be 280 sites. As of this writing, the City has inspected 323 stationary facilities in 2007-2008 and an additional approximately 127 mobile businesses. The City reserves the right to amend the planned inspection list as it deems necessary; rationale for changes, if necessary, will be explained in subsequent JURMP Annual Reports.

7.2.4.3 Enforcement

In the event that an inspector determines that a commercial or industrial site is out of compliance with the Permit and/or City requirements, the inspector will document the corrective actions necessary to bring the site into compliance. Documentation of the corrective actions includes a compliance date – a day and time at which the inspector has determined that the site needs to be in compliance. This compliance date is based on the best professional judgment of the inspector. The inspector will perform a follow-up inspection to determine compliance has been achieved. If compliance has not been achieved, the inspector will escalate the enforcement actions. The results of the follow-up inspection are included on the inspection form documentation.

The enforcement actions for industrial and commercial sites/sources are similar to the City's general enforcement as described in Section 2.

7.2.4.4 Reporting Industrial Non-Filers

In each JURMP Annual Report the City will provide a list of industrial sites that may require coverage under the General Industrial Permit but which, to the City's knowledge, have not filed NOIs. At minimum the list includes the name, address, and an assessment of the SIC code of each business.

7.3 Mobile Sources Element

The City has participated in the development of a Regional Mobile Outreach and Education Strategy. The City will work with the Copermittees to ensure the implementation and success of this strategy. A copy of the *Regional Mobile Outreach and Education Strategy*, which includes a discussion of Carlsbad's jurisdictional efforts, can be found in Appendix 7-B.

7.4 Enforcement

The enforcement activities for industrial and commercial sites/sources are similar to the City's general enforcement as described in Section 2.

8.0 RESIDENTIAL COMPONENT

8.1 Introduction

This section describes the responsibilities of the City with respect to implementation of the Residential Component of the JURMP. This program is intended to: (1) reduce residential discharges of pollutants from the MS4 to the MEP, and; (2) prevent residential discharges from the MS4 from causing or contributing to a violation of water quality standards.

8.2 Source Characterization

The following provides a discussion of the rationale and methodology used to prioritize the City's residential activities and areas with respect to their potential threat to water quality.

8.2.1 High Threat to Water Quality Priority Residential Activities and Areas

The City identified its high priority residential activities and areas in accordance with Order R9-2007-0001, Section D.3.c(1) which include the following:

- Automobile repair, maintenance, washing, and parking;
- Home improvement projects;
- Home and garden care activities and product use (pesticides, herbicides, and fertilizers);
- Disposal of trash, pet waste, green waste, and household hazardous waste (e.g., paints, cleaning products);
- Sanitary sewer spills from private laterals;
- Any residential areas tributary to a Clean Water Act section 303(d) impaired waterbody, where the residence generates pollutants for which the waterbody is impaired; and
- Any residential areas within or directly adjacent to or discharging directly to a coastal lagoon or other receiving waters within an environmentally sensitive area (ESA) (as defined in Attachment C of Order R9-2007-0001).

Because Carlsbad is a coastal city with several areas discharging to 303(d) impaired waterbodies, all residential areas and associated activities within the City are considered high threat to water quality. The City will continuously provide information on the identified high threat to water quality residential areas and focus efforts towards residential activities that have the greatest potential to contribute to storm water pollution. All efforts will be reported each fiscal year in the JURMP Annual Reports.

8.2.2 Criteria

In accordance with Order R9-2007-0001, Section D.3.c(1), the City is required to prioritize residential areas and activities, the following criteria are considered to prioritize and establish oversight/inspection procedures:

- Type of activity;
- Material used;
- Waste generated;
- Pollutant discharge potential;
- Non-stormwater discharges;

- Proximity of area or activity to receiving waters;
- Sensitivity of receiving waters; and
- Any other factors identified by the City as relevant.

These criteria, in addition to the minimum high priority definitions in Order R9-2007-0001, are used to categorize the City's residential activities and areas as high priority. These program priorities will be reviewed and amended on a regular basis to increase or decrease priorities based on new evidence, data and/or information as the program evolves.

8.3 Best Management Practice Requirements

8.3.1 BMP Requirements

BMPs are crucial to the success of runoff control in growing urban areas. The City continues to implement a program to reduce contaminants in urban runoff originating from residential areas. BMP information will be made available to residents during investigations, in printed materials and direct mailings, at workshops, on the storm water website and hotline, during presentations, and at outreach events. The City has identified minimum BMPs for high priority residential activities and worked to ensure that BMPs were implemented. City inspectors require the following minimum BMPs (detailed in various fact sheets and brochures) for all residential sources:

- Move or cover potential pollution sources from storm water contact. Protect materials that could potentially contribute to storm water pollution by storing them indoors or covering them.
- Use dry cleanup methods. Washing or cleaning activities that involve the use of a water hose or pressure washing system were required to use dry clean up methods (mops, brooms, rags or wire brushes to clean pavement, buildings and equipment as much as possible).
- Residential car washing. Use soap sparingly, divert wash water to landscaped areas and pour buckets of soapy water down the sink. Never wash cars in the street or public right of way.
- Pet Waste. Clean up after pets. Use a bag to pick up waste when walking pets. Flush pet waste down the toilet or dispose of in a sealed plastic bag and deposit in the trash.
- Trash Management. All trash must be kept in appropriate sized containers until it can be hauled away. Frequently dispose of grass, debris, leaves, and other waste materials.
- Recycle, Reduce and Reuse. Recycle cans, bottles, paper and cardboard whenever possible.
- Reduce the Use of Landscape Chemicals: Decrease the use of lawn and garden care products such as pesticides, weed killers and chemical fertilizers. Consider using non-toxic pest control methods. Avoid over irrigation which washes these chemicals into the storm drain system.

8.4 Program Implementation

The following provides a discussion of the steps that will be taken to require, encourage, and verify the implementation of the prescribed BMPs for high priority residential areas.

8.4.1 Pollution Prevention Methods

Pollution prevention practices eliminate or reduce the generation of pollutants at their source. Pollution prevention includes proactive approaches residents can take to identify and reduce pollution sources. Proactive pollution prevention, when framed in the context of appropriate BMP identification, use, and maintenance is a key component to improving regional water quality. Education is the focus of the City's residential pollution prevention efforts and is the best approach to increasing awareness, changing behavior, and providing timely enforcement of storm water violations. A comprehensive outreach and education program that increases knowledge and awareness of pollution prevention measures is continuously being implemented. Residential pollution prevention opportunities were typically incorporated into the BMP brochures and handouts specifically developed for residents.

The City will primarily focus on education of its residents to prevent pollution. Education will be focused on the high priority activities discussed in Section 8.2.2 and will encourage residents to alter pollutant generating practices. Some examples of changing practices to prevent pollution include encouraging residents to:

- Use routine, preventative vehicle maintenance practices;
- Facilitate reductions in vehicle use (i.e. carpooling, public transportation, etc.);
- Make timely vehicle repairs;
- Minimize chemical usage;
- Use chemical alternatives for cleaning and gardening;
- Minimize or eliminate detergents and/or other cleaners when washing vehicles in residential areas;
- Use preventative practices to keep vehicles clean (park in a garage, under cover, etc.);
- Use safe substitutes and alternative methods for gardening;
- Employ integrated pest management techniques;
- Seek opportunities to incorporate native plants and drought tolerant species into landscaping plans in order to reduce water use and green waste;
- Use planting techniques that attract beneficial insects; and
- Compost vermiculture and yard waste recycling.

8.4.2 Complaint Response

The City will require and verify the implementation of prescribed BMPs for high priority residential areas and activities primarily through the public reporting of potential and prompt response by City inspectors. The City has a Storm Water Hotline, email address, and website that allows the public to report any actual or potential activities or incidents of pollutant discharge to the MS4. The City's Storm Water Protection Program can also receive reports from other City departments who have been contacted by Carlsbad residents. City inspectors will typically respond to and investigate all reports and referrals. The City's focus for investigating residential complaints will be to provide

specific information that will assist the public in understanding the effects of storm water pollution and how to prevent future impacts to water quality through implementing BMPs. When enforcement is necessary, the City inspector may utilize the appropriate enforcement mechanisms listed in Section 2 of this JURMP.

All complaints about high priority residential areas and activities are tracked in the City's SuiteResponse Request For Action (RFA) system, a database designed to manage illegal discharge complaints, investigation results, photographs, contact information, and other information relevant to the complaint process. The RFA system will continue to be used each time a complaint related to a potential illegal discharge is filed through the hotline, email, in-person, or during field discovery. The RFA system can track response times, types of discharges, resolutions, and run reports related to corrective actions or violations.

8.4.3 Used Oil and Waste Collection Services

The City has also successfully implemented a Household Hazardous Waste (HHW) program and continues to promote used oil recycling for all residents. The City will continue to implement the HHW Door-to-Door pick up program approved and adopted by the Carlsbad City Council in FY 05-06. The Door-to-Door collection program is contracted through Clean Harbors Environmental Services Inc. and offers residents a toll-free phone number (1-800-444-4244) to call for a disposal appointment. The program provides a means for Carlsbad residents to have HHW picked up from their homes and hauled away for a nominal fee. The service costs residents a \$10 co-payment (the City share is \$80 per collection) for pick-up and the maximum weight allowable is 15 gallons or 125 pounds. Appointments are typically made a week from the collection date and collections occur on Wednesday or Thursdays. In addition, residents can also dispose of HHW for free at three permanent facilities in Vista, Oceanside, and Poway. The process for door-to-door collection is:

- Residents collect HHW material at home.
- Call City's Service Provider and schedules an appointment.
- On the day of the appointment, residents place HHW material on their porch, in front of their garage, or in a safe location and in a sealed container.
- Service Provider comes by and collects the materials.

In addition, the City will continue to sponsor a free annual HHW disposal day where Carlsbad residents can dispose of up to 15 gallons or 125 pounds of HHW materials. During the events, residents will be able to dispose of HHW and receive information about the City's various environmental programs, including storm water, bulky item pick up, used oil recycling, and water conservation, and trash collection.

The City will continue to endorse a used oil-recycling program where the public can recycle up to 10 quarts of used motor oil and/or 15 quarts of diesel at four locations. Used motor oil was only accepted if it was not mixed with other liquids, including water, antifreeze, gasoline, or parts cleaners. The following four locations accepted used oil for recycling.

Firestone Store #2252 2545 El Camino Real Carlsbad, CA 92008 760-434-8392 CIWMB# 37-C-01199	Jiffy Lube # 1621 6021 Paseo Del Norte Carlsbad, CA 92009 760-431-9875 CIWMB# 37-C-02977	Ken Grody GMC-Pontiac 5445 Paseo Del Norte Carlsbad, CA 92008 760-438-1021 CIWMB# 37-C-05563	HHW Collection Facility 1165 East Taylor Street Vista, CA 92084 800-714-1195
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The City will continue to promote the used oil collection program through various outreach and education efforts. The City's web page (<http://www.ci.carlsbad.ca.us/cserv/oil.html>) will also offer residents information on how and where to properly dispose of used oil.

8.4.4 Corrective Actions and Enforcement

The public can report illegal discharges or any activities that may impact water quality to the Storm Water Protection Program through the storm water hotline, email address, or to other City departments. All reports and referrals are promptly investigated and resolved to the fullest extent. When a storm water complaint is received about a residential site or source, or an illegal discharge was observed or suspected, the City conducts a complete storm water investigation. If a significant and/or immediate threat to water quality is observed, appropriate actions were taken to require the responsible party to immediately cease the discharge and/or correct the situation. Specific information on the effects of storm water pollution and how to prevent future impacts to water quality through the use of BMPs was provided to residents during investigations. This information was designed to increase the public's awareness and understanding of storm water pollution prevention efforts and water quality enhancement.

City inspectors and staff members with enforcement authority may initiate enforcement actions against residents who discharge pollutants to the storm water conveyance system, or who fail to comply with any required BMPs specified by the City. The inspectors, in accordance with the City's existing procedures, will document each observed violation. Depending on the severity of the violation, enforcement can range from a verbal warning to monetary fines. The inspectors will have flexibility to establish appropriate compliance time frames and to escalate enforcement on a case-by-case basis as needed to ensure compliance.

If a significant and/or immediate threat to water quality is observed by a City inspector, action will be taken to require the responsible party to immediately cease the discharge. The enforcement mechanisms available to City are described in Section 2 of this report.

8.4.5 Additional Controls

Regardless of where the activity occurs, the City categorically prohibits illegal discharges from residential sites/sources. Aside from washing, cleaning, or other activities that may cause illegal discharges, residential sites/sources have the potential to conduct activities that produce significant pollutant discharges. If in the future the City finds that even in the absence of illegal discharges the activities of residential sites/sources are contributing pollutants of concern to a CWA section 303(d) impaired waterbody segments or are

negatively impacting ESAs, additional controls will be required for those activities. Further, if the City has reason to believe that residential sites/sources are generating significant illegal discharges in a given area of the City that is tributary to a 303(d) listed waterbody (and the discharges contain pollutants causing the impairment) or is within, directly adjacent to, or directly discharges to a waterbody within an ESA, City staff may more regularly visit those areas and/or take other actions to address the illegal discharges.

As previously stated the City has prioritized all residential areas and activities as high threat to water quality. If during investigations, MS4 maintenance, water quality monitoring, or other evaluations, the City finds that specific neighborhoods are having a direct impact on receiving water quality additional control will be required as necessary. These controls could include, but are not limited to the installation of storm water treatment devices (i.e. filters, debris collects, filtration systems, etc.), maintenance of storm drain systems by responsible parties, additional educational efforts, targeted enforcement actions, development and implementation of storm water pollution prevention plans, and other additional controls as necessary.

8.5 Regional Residential Education Program

The City has collaborated with the Copermittees to develop a Regional Residential Education Program. A copy of this strategy can be found in Appendix 8. In addition, the City has developed a jurisdictional residential education program to supplement the Regional and watershed efforts. Further discussion of this program can be found in Section 10 of this report.

9.0 ILLICIT DISCHARGE DETECTION AND ELIMINATION COMPONENT

This section describes the responsibilities of staff with respect to implementation of the Illicit Discharge Detection and Elimination Component of the JURMP. This program section is intended to provide direction to actively seek and eliminate illicit discharges and connections.

9.1 Introduction

The following is a description of the program to actively seek and eliminate illicit discharges and illicit connections as required by Section J.1.a(3)(h).

The Illicit Discharge Detection & Elimination (IDD&E) Program for the City encompasses all sources of solids and liquids containing pollutants and sanitary sewer system wastewater that may enter the municipal separate storm sewer system (MS4). The Program focuses on prevention while actively pursuing, investigating, and eliminating illicit discharges. The City strongly encourages voluntary elimination and cleanup of illicit discharges to decrease enforcement efforts (Section 9.5).

Illicit discharges are a point source discharge of pollutants to the MS4, which are not comprised entirely of storm water (i.e. rainwater), not authorized by a National Pollutant Discharge Elimination System (NPDES) Permit, and/or not exempt per the Carlsbad Municipal Code. An illicit discharge may be the result of pollutants entering the MS4 from:

- Spills,
- Illegal and illicit connections to the MS4,
- Illegal dumping (direct and indirect) to the MS4, and
- Prohibited discharges.

Examples of identified sources of pollutants are:

- Industrial Facilities
- Commercial Businesses
- Municipal Facilities
- Residential Areas
- Construction Sites
- Mobile Businesses
- Any type of wash water discharged to the MS4
- Any water/liquid containing pollutants discharged to the MS4
- Sanitary sewer wastewater discharging to or infiltrating into the MS4

The City's active pursuit and elimination of illicit discharges includes:

1. Adequate enforcement and inspection authority
 - Revise ordinance as necessary
 - Ensure staff are trained as appropriate
 - Define Illegal Discharge

- List types of Exempted Discharges
2. Continued implementation of current procedures including:
 - Information receipt,
 - Verification
 - Investigation
 - Corrective action and verification
 - Maintenance
 - Documentation
 - Information retrieval and archive
 3. Implementation of a Coastal Outfall Monitoring Program, Dry Weather Analytical Monitoring Program, MS4 Monitoring Program, and Source Identification Program which are designed to detect potential chemical, physical, and biological pollutants in urban runoff.
 - Conduct Monitoring
 - Investigate potential illicit discharges or illegal connections observed in field at time of initial sample
 - Eliminate sources where possible
 - Investigate exceedances based on lab analysis
 - Eliminate sources where possible

PREVENTION

Prevention of illicit discharges and connections will be accomplished through the use of education and training of the general public, businesses, and City staff to the Maximum Extent Practicable. All prohibited discharges and non-storm water discharges will be targeted for prevention (See Non-Stormwater Discharge Evaluation Worksheet after this Section). The City's Pollution Prevention Program is described below:

- Conduct routine maintenance on the sanitary sewer system to prevent spills and discharges to the MS4
- Implement controls to prevent or limit infiltration of seepage from sanitary sewer system to the MS4
- Respond, contain and remediate spills including sanitary sewer system spills or discharges and privately owned systems.
- Implement BMPs as appropriate for the potential type of spill or illicit discharge to prevent spills from entering the MS4

REDUCTION

The City of Carlsbad outlines in the Municipal Code (Chapter 15.12) the specific activities where Best Management Practices may be required by an enforcement official to reduce illicit discharges and connections to the MS4. Implementation is to the maximum extent practicable for the following activities:

1. Automobile, airplane, boat, and/or vehicle, repair, service, fueling, maintenance, washing, storage, and/or parking;

2. Landscape and garden care activities including application of related products, such as pesticides, herbicides, and fertilizers;
3. Building repair and maintenance, including but not limited to cement mixing, repair or cutting, masonry, painting and/or coating;
4. Impervious surface or building washing or cleaning, including power washing or steam cleaning;
5. Storage and disposal of household hazardous waste (e.g. paints, cleaning products, pesticides, herbicides);
6. Disposal of pet waste;
7. Storage and disposal of green waste;
8. Mobile carpet, drape or furniture cleaning;
9. Pool, spa, Jacuzzi, or fountain cleaning, servicing, or repair;
10. Pest control; and
11. Plant growing including: farm land, fields, nurseries, greenhouses, and/or botanical gardens.

ELIMINATION

Elimination of illicit discharges and connections to the MS4 will be accomplished by terminating active discharges and working with responsible parties on appropriate corrective action plans. The specific prohibited discharges listed below and non-storm water discharges will be the targets for IDD&E Program. Once a discharge or connection has been verified, the appropriate agency will be notified of the incident, the type of material discharged, and amount discharged. Elimination of illicit discharges that have been detected will be to the maximum extent practicable.

9.2 Public Reporting of Illicit Discharges and Connections

The City continues to operate a Hotline used by the public to report potential illicit discharges and connections. The Hotline number is posted on the City's Website, is provided in informational mailers to residents and businesses, and is advertised in the phone book. The Hotline is capable of receiving reports in English and Spanish 24 hours per day, seven days per week.

Public participation is an essential part of an illicit discharge elimination program. Many illicit discharges are one-time occurrences that may not be observed by City staff. Concerned citizens can help stop illicit discharges by reporting them to the City. Citizens of Carlsbad can file complaints by phone or e-mail using the two public complaint hotlines and e-mail address listed below, which are currently operated by the City of Carlsbad and the County of San Diego Department of Environmental Health:

- City of Carlsbad Storm Water Hotline, (760) 602-2799
e-mail: stormwater@ci.carlsbad.ca.us
- County Storm Water Hotline, 1-888-846-0800

The County storm water hotline is answered Monday through Friday, 8:00 a.m. – 5:00 p.m., provides services in both English and Spanish and provides a voice mail message for 24-hour public access. Relevant complaints received through the County hotline will be forwarded to the City Storm Water Protection Program.

In addition to public complaints, the City will continue to train full-time maintenance and operations staff to immediately refer all storm water violations observed while working in the field to the Storm Water Protection Program.

Upon receiving a storm water pollution complaint, the City will implement the following complaint receipt procedures:

- **Complaint Information**

Collect essential information from the reporting party including:

- Complainant information,
- Potential Responsible party information,
- Location and description of the discharge, and
- Materials and waste involved, etc.
- Enter information into a database.

- **Prioritization**

Complaints will be prioritized according to relative urgency using the following criteria:

- Is a hazardous or unknown material involved?
- Is the spill currently occurring?
- Is there an immediate threat to health or the environment?

If the discharge involves a hazardous or unknown material, the Carlsbad Fire Department (CFD) will be contacted to investigate. CFD will contact the San Diego Hazardous Incident Response Team (HIRT) if needed. For discharges that are currently occurring, an immediate referral to the appropriate agency, whether storm water, wastewater, or other group will be made. Discharges that have ended may not need immediate investigation. Investigations will follow procedures outlined in Section 9.5 of this document.

- **Routing / Referral**

Based on the prioritization, complaints will be routed to the appropriate City staff or department, or other appropriate agency for further investigation and the City will confirm receipt.

9.3 Spill Reporting, Response, and Prevention

The City's Spill Prevention Plan covers spills to the storm water conveyance system. The intent of the Spill Prevention Plan is to prevent or minimize the impact of spills by developing and implementing a procedural program. Additionally, the City has a Sanitary Sewer Overflow Response Plan (SSORP) as described in Section 6.8 of this JURMP.

Spills that require an emergency response by the Fire Department and the San Diego County Department of Environmental Health Hazardous Incident Response Team (HIRT) for management or mitigation will be reported to the Governors Office of Emergency Services and any other appropriate agencies, including the San Diego Regional Water Quality Control Board, by the HIRT in accordance with State requirements and within the required timeframes.

9.4 Urban Runoff Monitoring

The City conducts urban runoff monitoring under four programs: MS4 Outfall Monitoring; Source Identification Monitoring; Dry Weather Field Screening and Analysis; and, Coastal Outfall Monitoring. These programs are described below.

9.4.1 MS4 Outfall Monitoring

The MS4 Outfall Monitoring Program is part of the Regional Monitoring required in the permit. This program is currently being designed by the Regional Copermittees and will be implemented within the City of Carlsbad during FY 07-08 as required.

The objective of this monitoring program is to assess MS4 discharge water quality throughout the county and assess the relative contributions to receiving waters within each defined watershed management area.

The monitoring design is based on a combination of random and targeted sampling of MS4 outfalls in each watershed. Random sampling will be conducted to assess countywide conditions of MS4 outfall water quality. Targeted sampling will be conducted to assess the relative contribution of particular MS4 outfalls to receiving waters.

Details of the MS4 Outfall Monitoring Program will be finalized and submitted to the Regional Board by July 1, 2008 as required by the Order. These details shall include monitoring locations, frequencies, analytes, sampling and analysis methods, procedures, and reporting strategies.

9.4.2 Source Identification Monitoring

The Source Identification Monitoring Program is part of the Regional Monitoring required in the permit. This program is currently being designed by the Copermittees and will be implemented within the City of Carlsbad during FY 08-09 as required.

The objective of this monitoring program is to identify and assess the pollutant sources within the MS4 conveyances that may be impacting the water quality conditions of receiving waters.

The Pollutant Source Identification Monitoring Program will focus on targeting drainage areas where monitoring information suggests contributing problems and the assessment of specific activities that may be expected to contribute pollution to receiving waters.

The program objective will be addressed by the collection and analysis of urban runoff within MS4 conveyances during both dry and wet weather periods. The desired outcome of the program is to find the pollutant sources so that appropriate management action can be applied to eliminate the source from entering receiving waters.

Details of the Source Identification Monitoring Program will be finalized and submitted to the Regional Board by July 1, 2008 as required by the permit. These details shall

include monitoring locations, frequencies, analytes, sampling and analysis methods, procedures, and reporting strategies.

9.4.3 Dry Weather Field Screening and Analytical Monitoring

The City of Carlsbad has an on-going Dry Weather Analytical Monitoring Program. The program outlined below is the result of years of experience conducting this program. The program has been modified to meet the requirements of the Order while taking into account what has been learned about the system.

Order R9-2007-0001 requires a detailed trash assessment component as a part of the Dry Weather Monitoring. A copy of the August 30, 2007 trash assessment program titled “Monitoring Workplan for the Assessment of Trash in San Diego Watersheds” is included in Appendix 9-B. This will be incorporated into the City’s Program.

The objective of this program is to detect and eliminate illicit connections and illegal discharges (IC/IDs) in order to minimize the negative impacts on receiving water bodies. Illicit connections and illegal discharges have the potential to transport large amounts of various pollutants to MS4s through storm water runoff and non-storm water discharges.

The City will use dry weather field and analytical monitoring information to characterize dry weather discharges in the MS4 and identify conveyances that are discharging elevated levels of pollutants. Follow-up studies and source investigations will be conducted as required, to detect and eliminate the sources of these pollutants.

There are three components to the dry weather-monitoring program:

1. Field observations
2. Field screening
3. Laboratory analyses.

Field observations include various site descriptions and a series of qualitative (mainly visual) observations of physical and biological conditions at the site. Field screening includes determinations of several water quality parameters and flow in the field. The laboratory analysis component involves the collection of samples for a more extensive laboratory analysis of pollutants that can cause water quality degradation. The presence of abnormal conditions in any of the three dry weather-monitoring components is justification for initiating a pollutant source identification investigation.

The Order requires that follow-up investigations be conducted within two business days of receiving adverse results. This follow up timeframe has been incorporated into the program procedures.

The Dry Weather Monitoring Program is included in Appendix 9-A of this JURMP.

9.4.4 Coastal Outfall Monitoring

As required in Order R9-2007-0001, the City has a Coastal Outfall Monitoring Program. In addition to meeting the Order requirements, the City uses the program to identify illicit discharges and illegal connections similarly to the Dry Weather Monitoring Program.

9.5 Complaint Response and Investigation

Complaints or referrals are received via phone calls, emails, the storm water hotline or other mechanisms. In most cases, investigators will need to conduct a field investigation to confirm that a discharge is occurring or has occurred.

The following is a summary of the investigation process the City uses:

1. Before leaving for an investigation, staff will assemble needed information and equipment.
2. If the complaint is determined to be unfounded, it will be documented as such.
3. If an IC/ID is suspected, the City will trace flows or discharges upstream using MS4 maps, above ground and underground surveillance, video monitoring, water discharges, or dye/smoke testing as appropriate.
4. Samples may be collected using EPA protocol, following appropriate Chain of Custody procedures, and tested by a State ELAP certified lab.
5. If the flow under investigation is suspected to be sewage-related, this may be confirmed through the presence of odor and visible solids. If not readily evident, field testing for ammonia using test strips, or ELAP certified lab testing for bacteria may be used as appropriate.
6. If an IC/ID is confirmed it will be photographed, documented, the discharger will be contacted and appropriate actions will be taken to eliminate the discharge. If the investigator determines that the discharge is exempt, the Responsible Party will be contacted to discuss any applicable restrictions or BMP requirements. All violations will be documented in writing. If a Responsible Party is available, a written warning or Notice of Violation may be issued from the field during the investigation. If the Responsible Party is unavailable, they will be contacted as expeditiously as possible (eg. via phone, email, or mail). All contact with Responsible Parties, including meetings, in person discussions, and phone calls, will be documented with a narrative describing the topics that were discussed.
7. Information about the Responsible Party and their activities may be available through previous storm water program records or City business license records. If possible, the address will be located on a map, and nearby receiving waters identified. The City inspector may review previous investigation records to identify other incidents that have occurred near the area of concern in the past. These records may help identify potential sources of the discharge.
8. The City will require Responsible Parties to implement corrective actions to discontinue discharges which are found to carry pollutants to the MS4. Corrective actions may include disconnecting, blocking, stopping or diverting drainage facilities and pipe connections which are determined to discharge pollutants to the MS4, eliminating the source of the discharge, removing pollutants from the site, keeping pollutants from coming in contact with the discharge, and/or containing potential illegal discharges on site for treatment or proper disposal.
9. Illicit connections and illegal discharges which are not removed, eliminated or otherwise continue to discharge to the MS4 will be cause for escalating

enforcement actions by the City. The City's available enforcement actions are identified in Section 2 of this JURMP.

10.0 EDUCATION COMPONENT

10.1 Introduction

This section describes the City's educational program that is intended to use all appropriate media to (1) measurably increase the knowledge of the target communities regarding MS4s, impacts of urban runoff on receiving waters, and potential BMP solutions for the target audience; and (2) to measurably change the behavior of target communities and thereby reduce pollutant releases to MS4s and the environment.

To meet the Permit requirements, training for all target audiences will include content from selected topics listed in the educational categories identified in Table 3 from section D.5.a(1) of the Permit. These educational categories include:

- Laws, Regulations, Permits and Requirements (Laws and Regulations)
- Best Management Practices (BMPs)
- General Urban Runoff Concepts (Runoff Concepts)
- Other Topics

The Permit also lists specific training requirements for certain municipal departments, personnel, and contractors. These target audience will be trained at the frequency and in the content as required by the Permit. Training will take place in a variety of formats including, but not limited to, workshops, handouts, presentations, during inspections and investigations, mailers, print media, newsletters, tailgate meetings, website, and other forms and formats as developed. The frequency of training will vary depending on the target audience and the specific requirements of the Permit. The City has developed Table 10-1 as a general guideline for the content, form and frequency of training for target audiences identified in the Permit. Specific, selected training opportunities and compliance with the Municipal Permit will be reported in each annual report.

Table 10-1: Content, form and frequency of training for targeted audiences.

Targeted Audiences	Content				Form											Frequency	
	Laws and Regulations	BMPs	Runoff Concepts	Other Topics	Tailgate Meetings	Bill stuffers	Mailers	Community Events	Paycheck Stuffers	Newsletters	Presentations	Inspections/ Investigations	Website	Handouts	Print Media		Workshops
Municipal																	
General Employees	X	X	X	X				●	●	●			●				Employee Orientation Annual
Development Planning	X	X	X	X	●						●			●		●	Annual
Construction	X	X	X	X	●						●			●		●	Annual
Storm Water Inspectors	X	X	X	X	●						●			●		●	Annual
Contractors	X	X	X	X	●						●	●		●		●	Pre-Construction Meetings Continuous
Construction																	
Site Owners and Developers	X	X	X	X	●		●				●	●		●	●	●	Pre-Construction Meetings Continuous
Industrial																	
High Threat	X	X	X	X			●	●			●	●	●	●	●	●	Annual
Other Owners and Operators	X	X	X	X			●	●			●	●	●	●	●	●	20% of the inventory the first year 25% of the inventory thereafter
Commercial																	
High Threat Stationary Owners and Operators	X	X	X	X			●	●			●	●	●	●	●	●	Annual
Other Stationary Owners and Operators	X	X	X	X			●	●			●	●	●	●	●	●	20% of the inventory the first year 25% of the inventory thereafter
Mobile Owners and Operators	X	X	X	X			●	●			●	●	●	●	●	●	At least once during Permit cycle
Residential Community																	
General Public	X	X	X	X		●	●	●		●	●	●	●	●	●	●	Continuous
School Children		X	X	X				●			●		●	●			Continuous
Underserved		X	X			●	●	●			●	●	●	●	●		Continuous

10.2 Municipal Staff Training

Storm water training for municipal departments and personnel will include general training and job specific training using the appropriate topics as outlined in Table 10-1. The objectives of the employee training programs are as follows:

- Promote a clear understanding of the urban runoff and water quality issues, including activities that can potentially pollute receiving water bodies.
- Identify and implement strategies for BMPs.
- Promote employee ownership of the problems and their ability to apply solutions.
- Integrate employee feedback into training and BMP implementation.

The City provides training to staff involved with the implementation of the JURMP. All staff training will be amended using class room style presentations, attending conferences, field trainings, tailgate meetings, videos, learning written SOPs through paycheck stuffer, and/or appropriate methods.

In addition to the specific training topics listed above, City staff will continuously receive information and general storm water training through various communication methods including:

1. Storm Water Webpage: Employees are able to download BMPs and the JURMP directly from the City's website.
2. Intranet: The City's intranet is used to post messages and inform employees of various events and opportunities for participation, such as the Coastal Cleanup Day and Earth Day activities.
3. Public Works Newsletters: The Public Works newsletters feature updates on the Storm Water Protection Program and Environmental Programs. Employees are notified by e-mail when these newsletters are published and posted on the City's intranet, and hard copies were given to personnel without computer access.
4. Workshops: All new employees are invited to attend a three-day orientation workshop entitled *First Mondays*. At this workshop, employees are given a Power Point presentation introducing them to the Storm Water Protection Program.
5. Promotional Items: Items such as water bottles, notepads, mouse pads, cups, and pens with the hotline numbers and other pollution prevention messages continue to be distributed to employees.
6. Hotline Decals and Notepads: Car window decals and notepads with the storm water hotline are distributed for employee use in the field.

10.3 Educational Outreach Element

In addition to the training and education provided to municipal staff, the City will provide educational outreach to targeted audiences throughout the City. This educational outreach will be delivered in many forms. Until the materials are completely developed, it is unknown as to which specific forms, methods and mechanisms will be used to deliver the outreach. The following is a list of the potential means for delivering the outreach:

- Printed Materials and other handouts;
- Direct Mailings;
- City web site and Hotline;
- Workshops;

- Public presentations;
- Community events;
- Print Media (Printed ads, press releases, media interviews, etc.);
- During inspections and investigations:
- Targeted industrial and commercial activity outreach campaigns;
- Other outreach activities as needed.

The educational outreach described below will be provided on a continual on-going basis.

10.3.1 Underserved Target Audiences

A discussion of the City's efforts to identify underserved target audiences, emphasize high-risk and allowable behaviors is discussed in the Regional Residential Storm Water Education Program which is found in Appendix 8.

10.3.2 Mobile Sources

The majority of mobile sources are considered commercial businesses. Locally in Carlsbad, the mobile sources will receive education and outreach based on their commercial activities, similar to that described above. The City will also continue to work with the watershed and regional Copermittees to develop comprehensive programs to address mobile sources, including education, inspection and enforcement programs.

Additionally, because residents are primary users of mobile businesses, the City will also focus some of its mobile business outreach to the general residents of the City.

10.3.3 Construction Site Owners and Developers

The City is committed to working with construction site owners and developers to ensure that BMPs are implemented at all construction sites. Construction and Development Services will provide information and education to applicants and developers during the application process, one-on-one or small group meetings, during pre-construction meetings, inspections, and complaint investigations. Construction site owners and developers will also be provided sample SWPPPs and SWMPs for engineers, contractors, and applicants to use as guides when preparing documents for proposed development projects. Copies of these documents and the SUSMP are available at the City's Permits Counter. The SUSMP is also available through the City's internet site.

The Storm Water Protection Program will continue to distribute BMP and pollution prevention information related to materials storage, perimeter controls, building and staging areas, dumpsters and port-a-potty services, tracking controls, concrete trucks and pumbers, washout areas, dirt and grading, earthmoving equipment, and storm drain protection.

The City will continue to conduct and participate in workshops to educate external parties, which include project applicants, developers, contractors, and property owners on the implementation of the storm water program and requirements for construction sites.

10.3.4 Commercial and Industrial Owners and Operators

The City has prioritized industrial and commercial businesses for inspection and will provide general storm water information in a variety of formats and media. The City will follow this proactive approach of focused and targeted educational workshops with facility inspections to address site specific needs and customize BMPs or SWPPPs (where needed) that address specific issues at each facility. As part of the inspection program, the City will analyze the feasibility of grouping commercial and industrial activity types for the purpose of developing specific BMP information; this effort will also be reviewed at the Watershed level to identify opportunities that may not be available at the local level.

All industrial and commercial owners and operators will be provided information on the requirements of the Municipal Permit, Carlsbad Municipal Codes, and minimum BMPs for the activities at each facility. City staff will verify that any required training is implemented and conducted as required. This verification will be a standard practice during scheduled site inspections. The local watershed, and regional outreach teams will continue to develop BMP information for high priority industrial and commercial activities and will inform the owners and operators of BMPs that are applicable to their location.

10.3.5 Residential, General Public, and School Children

Carlsbad will continue its on-going outreach to the residential community, school children, and the general public during the next Permit cycle. This will include the continued development and distribution of printed materials, public outreach events, presentations, published articles and press releases, videos, website access, and direct interaction with the public. Carlsbad has actively pursued a comprehensive environmental education and outreach program, combining the activities of storm water, solid waste and water conservation under the umbrella of Environmental Programs. The purpose was to create a unified message, better educate the public, and allow easy access for the public.

The City has developed The Carlsbad Residential Storm Water Education Program (Carlsbad RSWEP) and it is intended to assist the City in the development and implementation of an effective storm water education and outreach program for the targeted residential audiences. The City has identified an educational outreach plan, including messages and delivery formats that will effectively and accurately relay required and practical pollution prevention and BMP implementation opportunities. The overall objective of the program is to increase awareness and knowledge, and change the behaviors that contribute to storm water pollution. This program will further provide guidance to City Staff in determining priority residential education areas and activities, and measurably implement outreach strategies. In addition, the City has collaborated with the regional Copermittees to develop and implement a Regional Residential Education Program as required by the Permit. The City's jurisdictional efforts will also be incorporated into the program. A copy of the Regional Residential Education Program, including jurisdictional program, can be found in Appendix 8.

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11.0 PUBLIC PARTICIPATION COMPONENT

11.1 Introduction

Public participation is crucial to ensuring the effectiveness of the Storm Water Protection Program. Public participation comes in two forms: 1) participation in implementing the program and 2) providing a forum to solicit feedback from the public for improving the program. Public participation allows the residents, businesses, interested parties, and stakeholders to express their concerns and provide creative solutions before final decisions are made. The City will continue to lead and/or contribute to several public participation opportunities during the Permit cycle. The goal is to ensure that the Carlsbad community has a vested interest in solving storm water problems and has a general understanding of watershed protection. The Public will be encouraged to attend public meetings, outreach events, workshops, City Council meetings, and other events throughout the City.

11.2 Public Meetings and Hearings

The public has numerous opportunities to attend meetings, at the watershed and regional levels, where they can learn about the City's implementation of the JURMP and have their concerns addressed. The public meetings include:

- Carlsbad City Council Meetings: The City Council meets on the first four Tuesdays of every month at 6:00 p.m. These meetings are open to the public and televised live on Tuesday night on Cablevision Channel 3 and replayed Wednesdays at 8 AM and 2 PM. Videotaped copies of the Council meetings are available at the two Carlsbad libraries. City Council Agendas are prepared by the City Clerk's office and are available on the Friday prior to the City Council Meeting or through a subscription email service. Copies of the agenda and public hearing notices are available on the City's web site at www.carlsbadca.gov. Council Agenda Packets are available for review at the City Clerk's office and at the Carlsbad Library on the Friday prior to the City Council Meeting. City Council Minutes are prepared by the City Clerk's office and are the permanent record of proceedings of each City Council Meeting.
- City Boards, Commissions, and Committees: Residents can also become representatives on various City committees. The City Clerk's office maintains a current list of City Boards, Commissions, and Committees, current vacancies, meeting dates and times, and coordinates all appointments to these positions
- Planning Commission Meetings: The Planning Commission is comprised of seven members appointed by the City Council. This commission makes recommendations to the City Council regarding implementation and updating of the General Plan. When needed, they also provide recommendations to the Council regarding policy issues that affect long-range planning. They review development projects, provide recommendations to the City Council, provide reports to the City Council on the Local Facilities Management Plans, review the annual CIP for consistency with Growth Management Program, identify potential problems and opportunities facing the City, and suggest special studies when appropriate.
- Regional Copermittee Committee Meetings: The public is invited to attend various Copermittee Committee Meetings, including Management, Outreach, Monitoring, and other subworkgroups.

11.3 Feedback Mechanisms

In addition to the feedback opportunities available through public meetings and hearings, there are also a number of additional mechanisms available for the public to provide feedback.

Hotline and E-mail Address

The public is encouraged to provide input and feedback on the Storm Water Protection Program implementation. In addition to the public meeting opportunities detailed above, the public can call the storm water hotline to request information, provide comments, or report suspected illegal discharges to the MS4. In addition, the public can send e-mails directly to the Storm Water Protection Program at stormwater@ci.carlsbad.ca.us. There are also several other public contact phone numbers and City e-mail addresses available for public use. Other City departments' forward comments and questions to the Storm Water Protection Program as needed. The public can also access a Storm Water Protection Program web page through the City's website which provides information about the storm water requirements and BMPs.

The public can use the Environmental Programs hotline and e-mail address to obtain information about HHW, trash, and recycling programs. The City's RFA system tracks calls about Environmental Programs comments and questions from residents.

Direct Interaction

The City continues to rely on the interactions between City staff and the public to convey messages about storm water and pollution prevention. City staff receives targeted training to increase their understanding of urban runoff issues. Staff interaction with the public also provides additional opportunities for the City to obtain direct feedback about BMPs, ordinances, and pollution prevention efforts.

Public Surveys

The City conducts an annual *Public Opinion Survey* of Carlsbad residents. The survey entails a random-Digit dial methodology of over 1,000 residents to obtain information about attitudes and knowledge of City services, facilities, and issues, and also includes demographic questions for further analysis and interpretation. There are questions related to storm water quality included in the surveys. Surveys help the City understand how the public perceives storm water which can help foster better planning and management programs. The City publishes the results of the *Public Opinion Survey* in its annual *State of Effectiveness Report*.

General Outreach

Efforts through printed ads, newspapers, press releases, media interviews, PSA's, the Community Calendar, City guides, brochures, water bill stuffers, and other publications are used to keep the public informed of storm water requirements, updates, and public participation opportunities.

11.4 Community Events and Volunteer Efforts

The City's Community Volunteer Coordinator administers outreach and involvement programs for Carlsbad residents. This position has continued to find volunteers to assist the Storm Water Protection Program with various activities, including cleanup events. The City participates in several community events held in Carlsbad and other locations across the County. The typical events that the City participates in are listed below.

- Senior Health Fair
- Jazz in the Park
- Hot Rods & Cool Treats
- Fiesta del Barrio
- Health & Education Expo
- Lagoon and Beach Clean-Ups
- Citizen's Academy (2 x year)
- Fall Festival at the Ranch
- Holiday at the Rancho
- Hosp Grove Community-Wide Clean Up
- Agua Hedionda Lagoon Water Festival
- Carlsbad HS Career Day
- Children's Day at the Flower Fields
- Public Works Fair
- Trail Blast
- Outreach - Pacific Rim School
- Water Conservation Calendar Contest
- SD County Fair

Clean Up Events

When possible, the City sponsors an annual "*Buena Vista Creek Clean Up*" event. Volunteers collect trash and recyclables along Buena Vista Creek. The clean up efforts are a part of the annual California Coastal Cleanup Day. Common items found include fast food containers, recyclable glass and plastic beverage containers, and cigarette butts.

The City may also sponsor clean up site for the annual Regional Creek to Bay Clean Up event. County-wide, the Regional Creek to Bay Clean up has the highest turnout with just over 2,500 volunteers helping out at 41 cleanup sites. For the Carlsbad event, the City will consider sites where a significant amount of debris and litter typically accumulates.

Citizen's Academy

Twice a year, the City hosts an event called "*Citizen's Academy*." This seven-week course (one night per week) teaches residents about City government and how public services are provided. This provides an excellent opportunity for citizen participation in City government. An overview of the Storm Water Protection Program, including Permit requirements, program activities, and residential BMPs are presented at the events.

Storm Drain Stenciling

Stenciling storm drain inlets with "*No Dumping – Drains to Ocean*" messages reminds citizens and businesses not to pollute waterways. Stencils are available upon request to businesses and residents who are interested in stenciling private storm drains. Public inlets are marked by the Streets Department.

Composting Workshops

The City sponsors workshops geared at educating residents about the benefits of composting. At the workshops, residents receive information on water conservation, mulching, plant selection, vegetable peels and turning leaves, and the basic techniques necessary for successful composting. These educational workshops also clearly demonstrate the relationship between water conservation, solid waste, and storm water. Residents are also provided with information on alternative chemical products, including integrated pest management, and given information on the City's HHW collection facilities.

12.0 FISCAL ANALYSIS COMPONENT

12.1 Introduction

This section discusses Permit requirements that apply to the Fiscal Analysis Component of the Jurisdictional Urban Runoff Management Plan (JURMP) and what methodologies will be employed to accomplish all activities of the Storm Water Protection Program and provide a method to secure funds for on-going expenditures.

Since FY02, the City of Carlsbad has had a separate special revenue account for storm water protection (See attached budgetary sheets). These special revenue funds pay for all non-capital expenditures for the City's URMP including sampling, testing, inspection, enforcement, education and administration. Prior to FY08, these funds also paid for the majority of Storm Drain facilities maintenance costs. In FY08, the City established a separate account, funded by both Storm Water fees and General Fund revenues, to pay for storm drain maintenance and repair activities, as well as street sweeping, City-wide litter removal and hazardous materials response incidents. The total FY08 budget for Storm Water Pollution Prevention and Storm Drain Maintenance activities is \$2,726,943. In future years, these budgets may go up, or down, according to the resources needed to comply with the requirements of the new Permit. For example, there are over \$100,000 in one-time funds in this year's budget for consultants and Capital Purchases of Equipment that are not expected to be requested in future years. Another \$250,000 is included in the Storm Water budget for compliance with the Regional Board's anticipated Total Maximum Daily Load (TMDL) Investigative Order. Typically, budgets will be increased by a percentage determined by the City's Finance Department, adjusted for inflation and economic growth.

In September 2003, the City completed a Storm Water Regulatory fee study. As a result of this fee study, a Storm Water fee, in the form of a surcharge on Trash collection was established. The purpose of the fee is to fund those activities directly related to Storm Water Protection. The team that conducted the fee study determined that nearly all pollutants of concern by the Environmental Protection Agency with respect to Storm Water discharges can be classified as solid waste, and as such, a surcharge on trash collection was an appropriate avenue for funding the Storm Water Protection Program. In addition to the Storm Water fee, the City established additional fees for Storm Water Pollution Prevention Plan review and inspection, which are assessed on new development projects in the City. These two fees are the primary funding sources for Storm Water Pollution Prevention activities. The City continues to review and refine funding sources and operations to ensure that the available revenues are adequate to fund the on-going program operations.

With regards to future capital facility expenditures, the City intends to prepare an update to the Master Drainage and Storm Water Quality Management Plan (Master Drainage Plan). This plan identifies all needed improvements to the City's storm drainage infrastructure and establishes the basis for the costs included in the City's Local Drainage Area Fee program. The updated Master Drainage Plan will include analysis to incorporate infrastructure that may be necessary for water quality purposes. Once the

Master Drainage Plan is completed, the City will revise the Local Drainage Area Fees accordingly.

12.2 Fiscal Analysis Methods

As noted in section 12.1, the City of Carlsbad has developed a mechanism for funding Storm Water Pollution Prevention activities including a trash surcharge on residential and commercial customers, and Storm Water specific fees on development projects. In reviewing the City's approach to complying with the requirements of the Permit (R9-2007-0001), a comprehensive fiscal review was conducted, including a determination of what additional resources were necessary to comply with the permit. As part of this review, the 2003 fee study was updated with projected resource needs. The following steps were taken as part of the FY08 budget process:

- Requested an increase in the Storm Water fee for Residential and Commercial Customers, after reviewing the resources necessary to ensure compliance with the Permit, and determining that additional funding would be necessary to provide the resources required for compliance.
- Broke out the Storm Drain Maintenance program into a separate reporting structure and budget account to better track expenses and appropriate funding sources (these activities are not 100% Storm Water fee funded; approximately 15% of this budget is the responsibility of the City's General Fund).
- Requested additional dedicated staff and resources for Storm Water Pollution Prevention and Storm Drain Maintenance, based on an analysis of the new Permit requirements.

In addition, the City has taken steps to ensure that there are adequate resources in the budget for FY08 and beyond to meet all obligations under the urban runoff management programs of which we are a part. This year's budget anticipated increased resources necessary to comply with the requirements of the Permit. In addition to contributing over \$120,000 to Regional programs for the various Regional efforts the City is a part of, the following resources are included in the FY08 budget:

- The City is the lead Copermitttee for the Carlsbad Watershed. As such, the City has responsibility for coordinating activities for the Watershed, organizing and holding meetings, and reporting to the Regional Board. This City budgeted \$40,000 specifically for Watershed Coordination activities, in addition to our regular operating budget.
- The City anticipated greater participation in Regional Committees, and supplemented resources accordingly. Specific actions taken include:
 - Adding an Environmental Specialist position to help with water quality monitoring, local complaint response and inspections, and thereby allowing other, higher level staff the time to participate in Regional Committees.
 - Supplemented budgets to provide for greater cost-share for existing programs, and to pay for new programs, including the Hydromodification Program (\$60,000) and Regional Outreach and Education efforts (over \$60,000).

- On the Jurisdictional Level, the City requested and received additional Staff resources to assist with compliance with the requirements of the Permit. Included in these resources are:
 - A Senior Construction Inspector dedicated to Storm Water Pollution Prevention activities at Construction Sites around the City, and responsible to ensuring that Special Event Venues meet the terms of the Permit.
 - An Environmental Specialist position to assist with complaint response and inspections, as well as water quality monitoring efforts, as part of the City's Storm Water Program.
 - A Public Works Supervisor and ½ of a Senior Office Specialist Position to assist with coordination and supervision of the City's Storm Drain Maintenance Program and the reporting requirements that are part of this program.
 - Over \$70,000 to fund contract and temporary help for Storm Water Facility Asset inventory and mapping, and staff training on Low Impact Development techniques.

In future years, the City will continue to re-evaluate and prioritize its fiscal needs in order to meet the requirements of the JURMP and the Permit. Budget adjustments and resources may vary based on the needs to effectively implement the program.

A copy of the budget for Storm Water Protection and Storm Drain Maintenance is show below, as Table 12-1:

Table 12-1 FY08 Budget for Storm Water Activities

PROGRAM: STORM WATER PROTECTION/
STORM DRAIN MAINTENANCE
FUND: SOLID WASTE ENTERPRISE
PROGRAM GROUP: ENVIRONMENTAL PROGRAMS ACCT NO. 5215710/5216310

	2004-05 ACTUAL	2005-06 ACTUAL	2006-07 BUDGET	2007-08 BUDGET
PERSONNEL	524,349	570,628	677,499	936,792
MAINTENANCE & OPERATIONS	590,674	644,628	943,834	1,732,224
CAPITAL/TRANSFERS	9,541	43304.4	159,150	57,927
GRAND TOTAL	1,124,565	1,258,562	1,780,483	2,726,943
FULL TIME POSITIONS	8.10	8.10	8.30	11.10
HOURLY/FTE POSITIONS	0.40	0.40	0.00	0.00

In addition to these actions taken as part of the budget process, the City continues to review expenses and funding sources to ensure that adequate revenue streams are available to fund Storm Water-related activities. The City is currently reviewing

Construction Inspection and Development activities to determine what costs can be isolated as specifically related to Storm Water runoff activities.

13.0 EFFECTIVENESS ASSESSMENT COMPONENT

13.1 Introduction

The purpose of this section is to describe the City's program for assessing the effectiveness of its Jurisdictional Urban Runoff Management Program implementation. The City will perform an annual effectiveness assessment to specifically assess:

1. Each significant jurisdictional activity/BMP or type of jurisdictional activity/BMP implemented;
2. Implementation of each major component of the Jurisdictional Urban Runoff Management Program (Development Planning, Construction, Municipal, Industrial/Commercial, Residential, Illicit Discharge Detection and Elimination, and Education); and
3. Implementation of the Jurisdictional Urban Runoff Management Program as a whole.

13.2 Effectiveness Assessment Approach

13.2.1 General Approach

The City will use a combination of implementation, water quality and integrated assessments, as defined in Order R9-2007-0001, to evaluate three levels of implementation, including: (1) each significant or type of jurisdictional activities or BMPs; (2) each major JURMP component; and (3) implementation of JURMP as a whole during reporting periods. The assessment will be performed for each specific reporting period as well as comparatively across consecutive reporting periods.

The following is a description of the approach to be used for the three levels of program implementation.

Activities

The City's approach is to first identify all required activities within its program, and second, identify the significant activities. Next, measurable targeted outcomes are identified for the significant activities. These significant activities and targeted measurable outcomes are listed in Table 13-1 below. Some of the measurable goals are related to Levels 1-4 of the Effectiveness Assessment Outcomes as defined in Attachment C of Order R9-2007-0001. As more information about water quality problems, sources and activities are gathered, the City may revise its significant activities and targeted measurable outcomes.

Program Components

Based on the list of baseline activities and the significant activities, the City will compare the implementation of the component activities to targeted outcomes and develop an assessment of the program component as a whole. The assessment will consider the targeted outcomes, jurisdictional resources, other impacts to program implementation and other program activities that are conducted but not identified in the activities listed on Table 13-1 for specific program component areas.

Overall Program

The City will then evaluate overall program effectiveness based on the assessment of the program components. Evaluation will include a review of the number of program components that met their targeted outcomes, or in some cases exceeded them. Additionally, the City will consider other implemented program activities that may not be identified as significant in Table 13-1.

13.2.2 Outcome and Methods

The City will utilize the guidance outlined in the Copermittee document “A Framework for Assessing the Effectiveness of Jurisdictional Urban Runoff Management Programs” (Framework) to assess its significant activities, program components and overall JURMP as a whole.

The Framework document established six levels of outcomes. Beginning with Level 1 and ending with Level 6, each type of outcome represents a gradation from activity-based to water quality-based outcomes. Ultimately, the long-term objective is to establish clear relationships between Levels 1 and 6.

Level 1: Compliance with Activity-Based Permit Requirements.

This level consists of activities either prescribed by or established under Order R9-2007-0001. Examples include the establishment of discharge prohibitions, inventory updates, completion of required inspections, and general messages distributed through outreach programs. A fundamental feature of the Copermittee efforts is the establishment of specific programs and activities, which are assumed but not proven, to be beneficial to water quality. While many of the assumptions may be correct, there are currently few means of quantifying or establishing causal relationships that will make these efforts more measurable.

The common method the City will use to assess Level 1 outcomes is through confirmation that the activity was completed. Order No. R9-2007-0001 Annual Reporting requirements listed in Section J.3.a will be used to confirm activities.

Level 2: Changes in Knowledge/Awareness

The most immediate, basic outcome of urban runoff programs is a change in the knowledge, awareness, or attitudes of target audiences (learning that storm drains and sanitary sewers are separate systems and that everyday activities contribute to storm water pollution, etc.). Such changes are often targeted through outreach programs and once knowledge changes, it presumably forms the basis of behavioral change and the proactive use of BMPs.

The common method the City will use to assess Level 2 outcomes is through the use of interviews, surveys, questionnaires or pre- and post-quizzes/tests.

In order to assess Level 2 outcomes at commercial and industrial sites, a *Knowledge Assessment* tool will be used to measure the employee’s knowledge of storm water issues.

The assessment tool is used by inspectors during site visits and inspections. The City has utilized this assessment tool in previous years.

Level 3: Behavioral Change/BMP Implementation

A key goal of jurisdictional programs is to affect significant and lasting changes in the knowledge and behavior of municipal employees, residents, businesses, and other target audiences. Outcomes may range from compliance with discharge prohibitions, to implementation of BMPs, to active stewardship of watershed resources. Therefore, quantifying BMP implementation through surveys or other means provides an important step toward establishing pollutant reductions.

The method that the City will use to assess Level 3 outcomes is through interviews, surveys and inspection observations.

In order to assess Level 3 outcomes at commercial and industrial sites, the City will use a *BMP Assessment* tool to assess operators' BMP implementation during site visits and inspections. The City has utilized this assessment tool in previous years.

Level 4: Load Reductions

The primary goal of BMP implementation is to reduce pollutant loads in storm water discharges. An important emphasis of annual program assessments is to estimate the load reductions resulting from various program activities. Assuming that such reductions are properly targeted to existing or potential water quality problems, load reductions should in turn result in improvements to discharge and receiving water quality. Quantifying load reductions represents an important intermediate endpoint for assessments.

The methods the City will use to assess Level 4 outcomes are direct measurements of activities and the Watershed Treatment Model (WTM) or similar type of model, and will incorporate the High Priority pollutants identified by the Carlsbad Watershed workgroup. The WTM is a simple tool for rapid assessment of effectiveness of the storm water programs. The WTM (version 3.1) was prepared by the Center for Watershed Protection for the U.S. EPA Region V - Office of Wetlands, Oceans and Watersheds. The WTM estimates the pollutant loading reductions for sediment, bacteria and nutrients for various program activities, such as residential education, erosion and sediment control programs, and street sweeping, among others.

Level 5: Changes in Discharge Quality

In many respects, changes in discharge quality are the most direct expression of successful program implementation, since receiving water quality reflects much more than discharges from the MS4. Improving the quality of discharges into and from the MS4 is an important and targeted outcome.

The method the City will use to assess Level 5 outcomes is the analysis of the results of the Carlsbad monitoring programs: Dry Weather; Coastal Outfall; MS4 Outfall; and Source Identification.

Level 6: Changes in Receiving Water Quality

The ultimate objective of the Permit is to protect and improve water bodies from receiving polluted discharges from the MS4. Targeted changes to receiving water quality can include a variety of outcomes such as compliance with regulatory benchmarks, biological integrity, beneficial use attainment, and protection. Regardless of the outcomes, it is important to note that receiving water quality reflects considerably more than the quality of the City's MS4 discharges. In addition, receiving water quality can be adversely impacted by other events that are not under the control of the City, such as other permitted NPDES discharges, wildlife (impacting bacteria levels), atmospheric deposition, and other events and activities.

The method the City will use to assess Level 6 outcomes is the analysis of the results of the Regional Receiving Water Monitoring and Reporting Program.

13.3 Integrated Assessment

Based on the geographical location and findings of the monitoring efforts, the City may make appropriate adjustments to the monitoring programs as well as the significant activities list. This is a part of a process to focus the City's activities to the highest water quality problems in the City.

In order to perform integrated assessments, the City will rely on data gathered from the Jurisdictional Assessment, other jurisdictions' assessments, WURMP activity assessments, regional monitoring programs and existing literature regarding effectiveness assessments of programs and BMPs.

The integrated assessment approach will include the following:

- 1) Identification of water quality improvements in the MS4 discharges
- 2) Identification of water quality improvements in receiving waters
- 3) Identification of water quality problems in the MS4 discharges
- 4) Identification of water quality problems in receiving waters
- 5) Identification of potential sources that are likely to generate the pollutants related to the water quality problems
- 6) Assessment of the City's Jurisdictional Program Activities that are related to potential source identified in 5) above

13.4 Program Modifications

Based on the assessments performed above, the City will review its program and identify if there are improvements needed to maximize JURMP effectiveness. Based on the requirements of Order R9-2007-0001, the City will identify jurisdictional activities/BMPs that are ineffective or less effective than other comparable jurisdictional activities/BMPs. If these ineffective activities/BMPs are considered baseline requirements by Order R9-2007-0001, the City will propose to the RWQCB that the ineffective or less effective activities/BMPs be replaced or improved upon by implementation of more effective jurisdictional activities/BMPs as required in Order R9-2007-0001. Upon acceptance of these recommended changes, the City will revise its JURMP to reflect these modifications and adjustments.

Where monitoring data exhibits persistent water quality problems that are caused or contributed to by MS4 discharges, jurisdictional activities or BMPs applicable to the water quality problems will be evaluated for modifications and improvements to correct the water quality problems. Again, if these modifications or improvements are replacing baseline requirements of Order R9-2007-0001, the City will propose the replacement activities/BMPs to the RWQCB for approval to deviate from the Order requirements.

Table 13-1 Effectiveness Assessment – Significant Activities, Methods, Measures and Targeted Outcomes

Component	Significant Activity	Method	Measure	Level	Targeted Outcome	Result	Program Effective? YES/NO			
							Compliance Level 1	Knowledge Change Level 2	Behavior Change Level 3	Load Reduction Level 4
Land Development	1. Post construction BMP inspection: inspections performed/inspections required.	Confirmation	Performed /Required	Compliance (1)	100%			N/A	N/A	N/A
Construction	1. Were all required inspections performed during the wet season?	Confirmation	Performed /Required	Compliance (1)	100%			N/A	N/A	N/A
Municipal	1. Were all required inspections performed during the fiscal year?	Confirmation	Performed /Required	Compliance (1)	100%			N/A	N/A	
	2. Were all required catch basin inspections performed?	Confirmation	Performed /Required	Compliance (1)	100%					
	3. How much debris was removed from the MS4 prior to the rainy season?	Direct Measure	Tons	Load Reduction (4)	N/A					
	4. How much debris was removed from street sweeping activities?	Direct Measure	Tons	Load Reduction (4)	N/A					
	5. Were all special events applications reviewed for potential coverage under City requirements?	Confirmation	# Reviewed /Total	Compliance (1)	100%					
Commercial-Industrial	1. Were all inspections performed as required?	Confirmation	Performed /Required	Compliance (1)	100%					N/A
	2. Were knowledge scores, on average, for current fiscal year higher than previous fiscal year?	Analysis	Average Score	Knowledge Change (2)	Upward Average					

Component	Significant Activity	Method	Measure	Level	Targeted Outcome	Result	Program Effective? YES/NO			
							Compliance Level 1	Knowledge Change Level 2	Behavior Change Level 3	Load Reduction Level 4
Commercial-Industrial	3. Were behavioral change/BMP implementation scores, on average, for current fiscal year higher than previous fiscal year?	Analysis	Average Score	Behavior Change (3)	Upward Average					
IDDE	1. Were all urban runoff related complaints responded to and resolved?	Confirmation	# Responses /Total Complaints	Compliance (1)	100%		N/A	N/A	N/A	
Education	1. Were changes in knowledge demonstrated or verified (i.e. quizzes?)	Analysis	Average Score Before/After	Knowledge Change (2)	%Change		N/A	N/A		
	2. How much nutrient load reduction occurred as a result of the "Lawn Care Education" Program?	WTM	Tons	Load Reduction (4)	N/A					
	3. How much bacteria load reduction occurred as a result of the "Pet Waste Education" Program?	WTM	Tons	Load Reduction (4)	N/A					

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14.0 MODIFICATIONS TO THE JURMP

The City has made modifications throughout the JURMP document to update its processes and identified activities to implement the requirements of Order No. R9-2007-0001.

Aside from restructuring the JURMP to fit the Regional Copermittees standard JURMP format, the City has made modifications by adding additional requirements to the JURMP Program. The additions to the document are highlighted below, however, the reader is encouraged to review the entire document as the various structural document changes constitute a completely revised JURMP.

Section 2: Administrative and Legal Procedures – Identified within the body of the JURMP, the organization structure of the City with respect to urban runoff program implementation.

Section 3: Non-Storm Water Discharges – Identified any variances from the exempted non-storm water discharges identified in Order R9-2007-0001.

Section 4: Land Development – Identified Treatment Control BMP tracking, inspection and verification elements. Acknowledged impending Hydromodification Management Plan requirements and participation in the development thereof. Included requirement for a single BMP Plan sheet to be included in the permit plan sets for consistent verification of construction process.

Section 5: Construction – Identified the Advanced Treatment Control criteria and implementation requirements.

Section 6: Municipal – Completely restructured the format by which the program is presented. The fixed facilities and field programs are identified and the inventory table describes the pollutant generating activities and the potential pollutants generated at each facility. The section also describes programmatic activities, e.g., street-sweeping; MS4 inspection and cleaning, etc.

Section 7: Industrial and Commercial – Added Mobile Business Program. Identified the prioritization process for the mixed (industrial and commercial) business inventory.

Section 8: Residential – Identified Regional Residential Program and efforts.

Section 9: Illicit Discharge Detection and Elimination – Added MS4 outfall, source identification and trash programs. Modified follow-up timeframe to be conducted within two days or receiving adverse results.

Section 10: Education – Identified form, content and frequency of education and outreach to all targeted audiences.

Section 11: Public Participation – No significant modifications.

Section 12: Fiscal Analysis – Identified fiscal analysis methods.

Section 13: Effectiveness Assessment – Identified significant activities to be assessed and the methods anticipated to be used to assess the activities.

Appendices – Developed Storm Water Standards to assist the development and construction communities with project approval and implementation. The Storm Water Standards includes information and requirements for the Land Development and Construction Components of the City’s JURMP. Additionally, the Standards reflect the updated SUSMP requirements, including Low Impact Development Site Design BMPs.

15.0 CONCLUSIONS AND RECOMMENDATIONS

The Carlsbad Jurisdictional Urban Runoff Management Plan (JURMP) was prepared to implement the requirements of Order R9-2007-0001 issued by the San Diego Regional Water Quality Control Board (SDRWQCB). This JURMP will be the guide for the City to manage improvements in water quality and reduce pollutants in urban runoff. The JURMP is a process of continuous improvement, both in the application of new procedures, technology, data analysis and best management practices. The JURMP will change and develop as the program matures and evolves through the life of the Permit.

The City of Carlsbad is committed to meeting the conditions and requirements in the Order and in this JURMP to the Maximum Extent Practicable to achieve the goals of water quality improvement and beneficial uses in the Carlsbad Hydrologic Unit or Watershed.

The process to implement this JURMP will require continuous significant financial resources from the City. The implementation will also require modifications in practices, procedures, data management, and work flows throughout the City organization. Development of this JURMP has taken into account the existing procedures and processes and these required modifications to initiate the necessary modifications that constitute full implementation.

Successful implementation of this JURMP will require that all program elements be implemented in a timely manner, or modified in writing when a change in course is needed. If new actions are identified during implementation of the JURMP that enhance water quality, enhance compliance with the Permit, or result from the annual effectiveness assessment, these actions will be formalized in writing as modifications to the JURMP. All changes to the JURMP must be coordinated through the Environmental Program Manager in the Storm Water Protection Program to ensure they are properly documented. All changes to JURMP Components will be submitted to the SDRWCQB as part of future Annual Reports.